For Reference

NOT TO BE TAKEN FROM THIS ROOM

Ex libris
universitatis
albertaensis


Digitized by the Internet Archive
in 2022 with funding from
University of Alberta Library

https://archive.org/details/Starritt1978

THE UNIVERSITY OF ALBERTA

IDEAL TYPES: AN EXEGESIS AND SYSTEMS REFORMULATION

by

© DON CAMERON STARRITT

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS

DEPARTMENT OF SOCIOLOGY

EDMONTON, ALBERTA

FALL, 1978

TO MY WIFE PEGGY

ABSTRACT

This thesis purports to deal with four separate but continuous aspects of ideal types in social science theory. Three of these aspects are reasonably well established in the literature: namely, the emergence, recognition, and implementation of ideal types in various branches of scientific investigation. However, the fourth aspect or component, specifically a systems reformulation of the nature and function of ideal types as interdisciplinary concepts has yet to be clearly articulated for the purposes of social science. The articulation of such a system is the ultimate goal of this work.

The approach is essentially theoretical and conceptual and in no way deals with the quality or quantity of empirical research into the subject. Rather, it consists of a comprehensive treatment of the assumptions and misconceptions which have confused methodologists and theoreticians alike in their attempts to effectively utilize ideal typical constructs in their research. In this regard philosophy and natural science play a significant role in helping to identify inconsistencies in the treatment of ideal types.

The final chapter of the thesis consists of the presentation of a systems-cybernetic theoretical model, which may be representative of those kinds of propositions and relations which may be required to develop a generalized theory of ideal types as systems and not merely as

classificatory schemes. The importance of such an approach to the future of social scientific research is paramount.

ACKNOWLEDGEMENT

The author wishes to acknowledge the support of Professor Ken Cunningham whose patience and guidance has made this work a valuable experience.

D.C.S.

TABLE OF CONTENTS

LIST OF FIGURES

CHAPTER I

INTRODUCTION

Plato notes:

> Nothing is just one thing by itself, nor can you rightly call it by some definite name, nor even say that it is of any definite sort. On the contrary, if you call it large, it will be found to be also small; if heavy to be also light, and so on all through, because nothing is one thing or some thing of any definite sort. All things we are pleased to say are, really in the process of becoming, as a result of movement and change and of blending with one another. (1935:152)

The primary objective of this thesis will be to realize a systems reformulation of the nature and function of ideal types in sociological theory. In accordance with this objective a critical analysis of the origins, emergence, and relevance of ideal types to the processes of human experience and understanding as well as the pursuit of science and theory in sociology will be presented.

The scope of this work is of necessity broad owing for the most part to the rather interdisciplinary content of ideal typical phenomena. For example, the arts and sciences are literally pervaded with ideal typical notions of good and evil, positive and negative, hero and coward, matter and anti-matter, male and female, space and subspace, continuing on and on

ad-infinitum. Clearly, any attempt to deal with these phenomena individually in an exhaustive fashion would be impossible in one lifetime. Given the relative truth of this assumption the approach to and focus on ideal types will be essentially limited to questions of a problem-solving rather than a problem-generating nature. Operating in these terms, an attempt will be made to identify and document various sources of omission and commission which appear to historically permeate the scientific treatment of ideal typical constructs.

The point of departure for the analysis to follow will begin with a discussion of the origins and emergence of what might be called ideal type thinking in the works of Plato, T. Hobbes, J. Locke, and J. Rousseau. This will provide an introduction to the quality of thought necessary to the emergence of ideal types in social theory in order that their early recognition in the works of A. Comte and H. Spencer may be outlined. Further implementation of these constructs will then be considered vis-à-vis the emergent polar conception of human nature in the social thought of Karl Marx and Emile Durkheim.

Having at this point noted the point of departure for an examination of the emergence, recognition, and the implementation of ideal typical formulations, the question then becomes how best to conceive of their

use given the goals and objectives of science and theory. Little consensus, in fact, exists today with respect to this question, and to use an analogy: many interpretations of the Bible are tolerated today; however, few are right, and even fewer are wrong. In any event, much confusion will be shown to exist with respect to the precise status, nature, and function of ideal typical formulations in social science theory.

Much of the difficulty in this area of specification of ideal type form and function may derive from the inability of social scientists to effectively discriminate and differentiate between the myriad of type concepts which present themselves in the literature. This may in part be due, as Lachenmeyer suggests: to opacity and imprecision in the theory language of sociology (1971:1), or more specifically it may derive as R. S. Rudner notes: from certain vague and conflicting assumptions made by Max Weber in his early delineation of the nature and function of ideal types as presented in The Methodology of the Social Sciences. (1966:54)

The above issues and problems dealing with the precise specification or role of ideal types in social theory will be examined at some length, in the hopes of clarifying the conceptual problem of the ideal type as it is presently conceived, within traditional existing paradigms.

Perhaps one outcome of this lack of consensus as to the use(s) of ideal typical formulations in social science over the last hundred years contributed to the proliferation of community typologies geared toward the comparative analysis of societies in various degrees and levels of social organization often conceived in different levels of aggregation. These typological efforts, primarily represented in the works of F. Tönnies, M. Weber, E. Durkheim, H. S. Maine, R. Redfield, R. M. MacIver, C. H. Cooley, T. Parsons, and R. K. Merton, constitute the major theoretical and empirical research accomplished to date with respect to ideal typical formulations in social science. As such, each of these theorists has, although often in different ways and more often than not by different means, demonstrated the degree to which the very backbone of sociology, namely the comparative method of research and discovery, is dependent upon and in some cases determined by essential but imprecise ideal typical formulations.

It is both with the number of versions of ideal type theory and with their essential but imprecise nature and function in social science that this thesis takes issue. Thomas Kuhn writes, in a discussion of crisis points in science:

> By the time Lavoisier began his experiments on airs in the early 1770's, there were almost as many versions of the phlogiston theory as there were pneumatic chemists.... That proliferation of versions of a theory is a very usual symptom of crisis. (1970:70-71)

Kuhn's suggestion in the above quotation is clear. It would seem that the proliferation of versions of a theory, in this case phlogiston theory, can be taken as symptomatic of a crisis of interpretation in science and theory. It is significant to note that the outcome of such crisis points is usually a novel or new theory of approach, or in Kuhn's words: The novel theory seems a direct response to crisis. (1970:75)

A novel theory precisely describes the character of my reformulation of ideal types. Its foundations will be seen to be built upon the demonstrated inability or failure of existing social science rules and procedures to adequately account for the operation of ideal typical phenomena in social experience. By an adequate account of such experience, I do not mean to imply some subjective value judgment on my part as to what constitutes adequacy, but rather have in mind Max Weber's formulation of causal and meaning adequacy, (1949:91-92) which must be observed in scientific explanation. It is the contention of this thesis that social science alone does not presently contain the conceptual apparatus nor the theoretical sophistication necessary to a clear specification or adequate explanation of the nature or function of complex ideal typical phenomena. Therefore, a reformulation of ideal types must look elsewhere, at least initially, for the required conceptual and theoretical acumen.

In the process then, of exhibiting the apparent dependency of the comparative method in social science on ideal types, it becomes necessary to consider the correlate or corresponding influence in natural science. As J. S. Mills suggests:

> The backward state of the moral sciences can only be remedied by applying them to the methods of physical science, duly extended and generalized. (1950:307)

The purpose in this consideration is not to negate or support the age-old argument that sociology is or is not a science by conventional, physical, or natural scientific standards, but is rather to examine critical logical and philosophical issues inherent in physical science principles and processes which perhaps have led to a more precise utilization of ideal typical formulations in natural science than have yet to be realized in the social arena. Whether or not the use(s) of ideal types in natural scientific theory is strictly isomorphic with those of social science is problematic and worthy of detailed analysis in its own right. However, for the purposes of this investigation, selective but systematic attention must be given to the principles of type formation regardless of the specific branch of science for which they were intended.

For example, the indeterminacy of factual relations involved in quantum mechanics appears to parallel, at least in principle, the general indeterminacy of ideal types.

P. A. Heelan notes:

> It is the indeterminateness of fact that follows from our way of knowing; for our first contact with the concrete case is through the presentation of sensible symbols. Such a contact is not a knowledge of a thing or an object but merely of a symbol of it. Comparison with other instances leads to an insight which is an understanding of what these sense presentations may possibly symbolize. This insight we called enriching abstraction, since it adds to the concrete particularity of the data as not yet understood, the enrichment of an act of understanding expressing an ideal norm which is essentially the addition of a set of relations between things or between symbols. (1965:39)

Thus, these observations on the indeterminant nature of factual relations in quantum theory might support the implication that the connection between concrete reality and an understanding or knowledge of that reality is its symbolic expression. The point is that this statement is derived from quantum physics and may possibly be seen to be just as applicable to the problem of the social type.

Continuing for a moment in a brief introduction to this notion of analogous natural scientific principles in pursuit of a better specification of processes of type formation in social science, K. Mendelssohn in a discussion of indeterminacy in Heisenberg's uncertainty principle of theoretical physics notes:

> The concept of uncertainty or certainty in physics is not a new idea. Heisenberg's uncertainty principle in fact can be interpreted as the bases for modern quantum mechanics. Heisenberg's formulation in 1927 was based on the probability of being able to locate an electron in space and predict its location the next instant. But to locate (localize) an electron

> because of its sub-atomic particle nature means to illuminate it with a light wave. This means an energetic photon of high energy which will change the momentum of the particle in an unknown manner. It is possible to reduce this uncertainty in momentum by employing a less energetic photon, but we must therefore sacrifice accuracy in the determination of the particle's position. According to Heisenberg this inaccuracy or indeterminacy is given by the quantum constant which has its significance in defining the ultimate limits of physical measurement. Thus the meaning of the uncertainty principle in physics is that the laws of quantum physics are statistical in nature and that we must forever remain uncertain about individual physical events within the limits of the quantum constant. (1959:60-63)

Heisenberg's uncertainty principle in quantum mechanics, and the certainty dilemma proposal, which I later posit as the outcome of a systems reformulation of ideal types, share a common problem of access to the phenomena they attempt to explain. In other words, the ability to localize an electron and predict its position is perhaps analogous to one's ability to localize the effect of ideal types on human experience. The uncertainty principle and the certainty dilemma both deal with mental constructs which are not in practice directly accessible to the senses. In other words, one cannot see an electron any more than one can see an ideal type. In some ways, owing mostly to this problem of observability, atomic and sub-atomic particles are ideal types in the same sense as F. Tönnies' concepts of Gemeinschaft and Gesellschaft (1957:23). The observable inaccessibility of Gemeinschaft-community and Gesellschaft-

society to the senses of the social scientist is in some way synonymous with the inaccessibility of the theoretical physicist to his atomic particles. The significance in this seeming parallelism is that certainty is approached strictly as a probable statistical or quantitative concept in the latter case, while the social scientist is unable to empirically demonstrate anything but the conceptual-qualitative elements of their ideal types. What the certainty dilemma proposal will attempt to do is to make possible the quantification of these qualitative entities by feeding them into an observable model. This may result in error, and quite probably will, but this eventuality may not diminish the impact of the theoretical possibilities any more than the illumination of an electron by a photon of light diminishes the import or validity of quantum theory.

In any event, the exploration of ideal typical isomorphisms in both the natural and social sciences may provide a comprehensive base from which to extract the essential ingredients of ideal type formulation, thus increasing the generalization power of the concept from social science only to science generally. Further, in positing a multiple and interdisciplinary approach to the question of type formation, a new paradigm may emerge anchored sufficiently in the philosophy of science so as to allow the social scientist access to ideal types as meaningful phenomena perhaps more vital to the processes of human thought and action, and therefore science, than

before conceived or imagined.

The key to an understanding of ideal types as meaningful phenomena appears rooted in Max Weber's notion of Deutendes Verstehen or more precisely the process of attaching significance to social phenomena. As T. Parsons points out in the introduction to Weber's The Theory of Social and Economic Organization:

> Verstehende Sociologie, is a system of sociological categories couched in terms of the subjective point of view, that is of the meaning of persons, things, ideas, normative patterns, and motives from the point of view of the persons whose action is being studied. (1968:10)

This position, however, is not without problems as becomes evident when Parsons goes on to spell out Weber's hopes for his method and the concept of Verstehen:

> What Weber did was to take an enormous step in the direction of bridging the gap between natural and social science by making possible the treatment of social material in a systematic scientific manner rather than as an art. But he failed to complete the process and the nature of the half-way point at which he stopped helps to account for many of the difficulties of his position. (1968:10-11)

Weber's notion of Verstehen and the use of ideal types in the process of understanding elements of social action enabled him, as the above quotation suggests, to bridge, at least to some degree, the impasse between social and natural scientific theoretical systems. However, the systematic treatment of social life that Weber's methodology is

grounded upon does appear incomplete and often misleading. For example, A. Schutz in an article on the problems of interpretive sociology discusses meaning adequacy in Weber's formulation of the ideal type:

> According to Weber, a continuous course of behavior is meaning adequate, to the degree that the relation of its constituent parts is affirmed by us as a typical meaning context in accordance with average habits of thought and feeling. Here again we encounter the paradox that dominates Weber's whole philosophy of social science. He postulates as the task of social science the discovery of intended meaning--indeed, the intended meaning of the actor. But this intended meaning turns out to be the meaning which is given to the observer and not the actor. (1973:207)

The paradox that Schutz notes of intended meaning being a discovery of the observer and not the actor in Weber's thought is a key issue in the reformulation of the place of ideal types in social theory.

Like Weber, I would agree that the discovery of the intended meaning of the social actor is the task of sociology, and similarly I would suggest ideal type constructs to be the only mechanisms whereby these abstract notions may be explored in a meaningful way. However, it would seem that Schutz may be quite correct in pointing out that Weber's methodology of subjective interpretation for getting at the intended meaning of the actor himself is lacking, and indeed as Schutz states:

> we have to go further and show without contradiction how the actor could himself have subjectively intended a certain meaning. (1973:207)

Access to the intended meaning of an individual actor in social context is without question a complex issue. It is no less complex than the specification of the nature and function of the ideal types used in its discovery. It defies empirical analysis because its operators seemingly do not function according to the rules of the game. Therefore, a theoretical reformulation of ideal types and related concepts including the aspect of intended meaning must be accomplished before contemporary scientists can progress beyond the half-way point Weber reached at the turn of the century.

The suggestion is that perhaps through an examination of Weber's thoughts on the notion of Verstehen, it may become evident that ideal typical constructs potentially contain enough information on the stuff of human experience to exert a real and actual systemic influence on the day-to-day thought and action of each and every individual in social interaction. Access to this information may be made possible by approaching human experience as a theoretical construct specified in its composition as including the concepts of attention and intention, which are somewhat analogous to the psychological principles of perception and motivation. In sum, ideal types may then be seen as meaning structures impinging on the cognitive organization of an individual in social interaction. They may become potential social-psychological operators in providing a body of psychological information input, which may be a

by-product of socialization with respect to a discrete thought or action on the part of an individual, but are not by-products in that they collectively define the limits or range within which that thought or action may occur.

Historically, the difficulty in conceiving of ideal types as actual psychological phenomena bearing direct influence on the minds and experiences of men appears as a problem of orientational precedent on the one hand, and epistemological ambiguity on the other. In the case of the former, Max Weber first clearly accounted for the possibility of ideal type functioning at the individual psychological level when he noted that:

> An ideal type of certain situations, which can be extracted from certain characteristic social phenomena of an epoch, might--and this is indeed quite often the case--may also have been present in the minds of the persons living in that epoch as an ideal to be driven for in practical life or as a maxim for the regulation of certain social relationships. (1949:95)

There are other precedents in history which point to ideal typical phenomena as potential psychological components of human experience including Plato's Forms (1969:296-297) as a most noteworthy example; however, the basic point in this regard is that social scientists have, up until now, been more concerned with the heuristic-methodological utility of ideal type concepts in science than with the specification of their meaning and significance to the human content which they attempt to explain.

Regardless, there is precedent for an individual psychological orientation to the form and function of ideal types in social theory.

With respect to the epistemological ambiguity which appears to cloud the issue of the possible psychological functioning of the ideal type, S. Toulmin writes:

> A specific theory is often accepted and in circulation for a long time, and may have to advance for quite a long way, before the question of the real existence of the entities appearing in it can ever be posed. (1967:123)

The degree to which one can conceive of ideal types as actual entities impinging upon human experience and not as merely class concepts or generalizing types with imprecise meaning appears to be an epistemological issue which deals with the nature of the questioning process in science. As Toulmin points out in general terms, a theoretical construct may be operative within a discipline for a long time before the very possibility of a questioning of the real existence of the entities that compose it makes any sense. It is suggested that the ideal type is representative of that kind of scientific theory which is open to comment of this sort. Further, it must be noted that it may only be with the recent articulation of systems concepts in social science that it indeed makes any sense to consider the question of the actual and possible operation of ideal types at the individual level of social experience. Toulmin notes numerous parallels of this process in the development of atomic theory where the theoretical existence of atoms

and molecules was accepted long before the cloud chamber showed just how far nuclei, electrons, particles, and the rest could safely be thought of as real things: that is to say as more than explanatory fictions. (1967:125) The certainty dilemma proposal and subsequent model, like the cloud chamber in theoretical physics, is a systems attempt to present a conceptual road map which may help to triangulate and locate ideal types in a schema which could account for the possibility of their functioning as atoms of human experience, which up until now have escaped detection in the shadows of empiricist and metaphysical debate.

Summarizing briefly at this point, ideal types essentially emerged from the social thought of the 19th century to be channelled immediately into social science theory as conceptual tools, functionally permitting the comparative analysis of macro-social phenomena. Their utilization in this fashion led to a perceived need to quantitatively and empirically validate their existence through a series of deductive attempts at operationally refining their meaning. Most of these attempts suffered and continue to suffer little success with the notable exception of T. Parsons' pattern variables of value orientation or role definition. (1951) Parsons' approach, while more successful than most with regard to the empirical validation of ideal types, has yet to be completely accepted in that Parsons, in his attempt to be exacting and exhaustive in presenting a case for the verification of his

ideal types, has, perhaps unwittingly, created a system within which some of its component parts have no empirical existence.

An unfortunate outcome of this apparent dead end in empirically validating ideal typical constructs is that many modern social theorists have largely abandoned such construction as anything more serious than pleasant abstractions of questionable use to the pursuit of science and theory in sociology. The contention of this thesis is that this position is untenable and dangerous to the future of theory construction in the social sciences. Further, it is suggested that the dictates in the process of natural science and of science in general cannot and do not support this end. A systems reformulation on the basis of a crisis of interpretation in past and present methods of understanding the potential significance of ideal types, conceived of as psychological as well as social entities which share relational isomorphisms with classical and modern physics, is not only justified but essential.

The primary advantage of a general systems approach to ideal types and their reformulation is that it permits, as L. V. Bertalanffy suggests:

> ...the attempt of scientific interpretation and theory where previously there was none, and a higher generality than that in the special sciences. (1968a:14)

Thus, the specification of ideal types as a problem of systems enables the researcher to develop theoretical

explanation in its absence and provide for a greater generality of application than may ordinarily be possible within the confines of a single discipline.

J. Klir and M. Valach point out, with respect to the advantage of a general systems approach, that in its use:

> ...we may say that we know the behavior of a system insomuch as we know its description. (1967:99)

Therefore, given the strength of this proposition, it remains the task of this thesis to describe as well as possible the nature of an ideal type system and the physical system upon which the former is modelled. When this is accomplished, the behavior of these two systems and the subsequent model may, as the above statement indicates, then be said to be known. Adequate description and specification of systems relations are then seen to provide the basis for an integrated general systems analysis.

In the process of reformulating the input of ideal types as meaningful phenomena of critical importance to human experience and the logic of scientific discovery, a case can be made that their explanatory and predictive potential is conceptually limited in form and content by a tendency on the part of the theoretician and methodologist to predefine their function in a mutually exclusive fashion. Moreover, the methodologists' concrete concern for empirical probability, testability, falsifiability, reliability, and validity in an ideal typical phenomenon such as Universalism, for example, assumes operationalization and further assumes

observability. The theoretician's concern, on the other hand, in the case of such a concept demands abstract formal logic and inductive and deductive consistency and efficiency in its treatment. The theoretician first need only assume the conceivability and/or possibility of the construct universalism. The important point in this regard is that the theoretician and the methodologist tend initially to use substantively different perspectives or referents in approaching ideal typical constructs and that these referents may be shown to impede the coupling of theory and practice.

Essentially, what this argument represents is that ideal types tend to be conceived of and predefined as concrete observable entities, abstract symbols, or formal representations depending upon one's theoretical or methodological referent. In short, ideal types will generally be shown to exhibit conceptual separation rather than integration on these dimensions, and a systems model is apparently required to allow the treatment of ideal types at all three levels of abstraction; namely: the concrete, the abstract, and the formal levels respectively.

Throughout this introductory section the intent has been to establish both the direction and significant content pursuant to systems investigation and reformulation of ideal types. Their origins, emergence, recognition, and implementation in social science theory is, as implied, demonstrably confused by a vocabulary of description that appears far from adequate. Therefore, the task remains in

this introductory section to briefly indicate the substance of the certainty dilemma proposal as an alternative means of conceptualizing and interpreting the content of ideal typical phenomena.

Simply put, the certainty dilemma proposal model posits without qualification that the human being is from the moment of his birth to the instant of his death caught in a web of personal and interpersonal energy. This energy is not a constant nor is it a variable for it is constant in its presence and variable in its effect. The notions are inseparable. This energy is further characterized as the certainty and/or uncertainty which follows from our way of knowing. Knowing, according to L. V. Wittgenstein:

> ...is an outcome of our language games ... it is learned and supported not by some intrinsic certainty but by what stands around it in experience; at the foundation of any well founded belief lies the belief that it is not founded ... any reasonable person behaves like this .... (1974:12-33)

Thus interpreted in terms of the certainty dilemma proposal, human experience is seen as the continuous interplay between energy forces which reflect the degree of certainty and/or uncertainty with which we think and behave toward ourselves and others. The forces are, of course, governed by the perceptual and motivational thresholds of the individual in question. That is, the degree to which the certainty dilemma proposal is operative is dependent upon a subject or object perceived or attended on the one

hand and subsequently a subject or object intended or acted upon on the other.

The significance of these initial parameters is a statement of the ideal typical nature of absolute certainty or absolute uncertainty in human experience. The possibility of such is a philosophical absurdity as Wittgenstein indicates in the following:

> What if something really unheard of happened? - If I, say, saw houses gradually turning into steam without any obvious cause, if the cattle in the fields suddenly stood on their heads and laughed and spoke comprehensible words, if trees gradually changed into men and men into trees. Now was I right when I said before all these things happened, I know that's a house; or simply that's a house? (1974:68)

or similarly:

> I meet someone from Mars and he asks me--'How many toes have human beings got?' I say 'ten', I'll show you, and take my shoes off. Suppose he was surprised that I knew with such certainty, although I hadn't looked at my toes--ought I to say 'we humans know how many toes we have whether we can see them or not?' (1974:56)

The ideal typical implications of the absurdity of knowing will later form an essential part of the basis for the certainty dilemma model which follows from the proposal by the same name.

Generally, the model will be constructed from a basic definition of certainty and uncertainty which, while not necessarily correct, does enable the researcher to handle

a number of elements of human experience. Foremost among these elements are the notions of perception and motivation. The relations established between certainty and uncertainty and perception and motivation will tend to exclude as well as include a number of propositions which should define the conceptual limits of the model. In this regard, a physical science paradigm of theoretical physics will be employed to aid in the explanation of the conceptual system. Where possible, a series of figures will be offered as further illustration of the dynamics of the systems processes with emphasis on their relational context.

Thus, precisely constructed deductively and inductively from the general principles and processes of social and natural science, the proposal may be simulated cybernetically. In other words, ideal types may be seen to exert a control function in the determination of human thought and action, which by way of a systems model such as this can be simulated by a machine. The consequences of and the potential in the actual construction of such a machine are both positive and negative depending upon one's point of view. On the positive side, in the attempt to lift ideal typical phenomena, for instance, out of conceptual and theoretical obscurity and indeed pave the way for a sociological technology, L. V. Bertalanffy notes:

> What is lacking in the science of today, is a knowledge of the laws of human society, and consequently a sociological technology. So the achievements of physics are put to ever more efficient destruction; we have famines in vast

> parts of the world while harvests rot or are destroyed in other parts; war and indiscriminant annihilation of human life, culture, and means of subsistence are the only way out of uncontrolled fertility and consequent over population. They are the outcome of the fact that we know and control physical forces only too well, and social forces not at all. If, therefore, we would have a well developed science of human society and a corresponding technology, it would be the way out of the chaos and impending destruction of our present world. (1968a:51-52)

It might be said given my attempt to link ideal types, normally conceived of as social entities, to psychological principles and natural laws of physics on the basis of systems-cybernetic isomorphisms is a small step toward the possibility of what Bertalanffy means by a sociological technology. That is, if a machine can be built to simulate the set of all possible outcomes of the certainty dilemma model, then upon empirical verification of its operation in experience, the probable states of an individual or group could be explained and predicted with a high degree of reliability on the certainty-uncertainty dimension.

Perhaps with the appropriate interfacing between the certainty dilemma machine and the information source, whether it be the human brain or a programmable machine, it may be possible to set up the conditions whereby a social scientist has access to an indicator of what might be called the peace of mind of an individual or group. If it should be discovered in the course of this work that

access to this indicator is a real and valid possibility, the implications for a social scientific control technology are profound and limitless. That is, in being able to link human experience as reflected in the dynamics of the certainty dilemma model/machine to an information control center such as a computer or human brain, a cybernetic loop between human experience and its control might be established such that the probability or occurrence of certainty and uncertainty states assumed could be observed and isolated in time. This might constitute the initial step required in constructing a social technology. The potentiality of such a technology is, as stated, a set of predictable and probable states of certainty and uncertainty in human experience and may allow us to know an individual's state of mind at any point in time.

There is an obvious danger in principle, however, in attaining this supposed degree of sophistication in our efforts to understand and explain human experience. Succinctly, this danger constitutes the further control a cybernetic technology would, if developed, give men to control the destiny of other men.

A. Gouldner warns:

> ... such social science will thoughtlessly drift into buying increments of information at the cost of human autonomy and dignity .... (1970:50)

Is it not enough to have the capability to blow up or poison one's neighbors, both friends and enemies, by

advances in atomic research? This alone is a frightening moral issue, but add to it even the most remote possibility of a technological capacity to know and subsequently control the experience of others, and one cannot help but be a prophet of doom and gloom for the future. Regardless, the human costs resulting from disparities between the pace of social and technological change in our post-industrial society must be accounted for and indeed solved before it is too late.

Having accomplished a brief outline of the goals and objectives of this thesis, it is necessary to return to the beginnings of the argument and consider the details of ideal typical phenomena beginning with their origins in the early philosophical works of Plato.

CHAPTER II

IDEAL TYPES: ORIGINS, EMERGENCE, RECOGNITION, AND IMPLEMENTATION OF IDEAL TYPICAL CONSTRUCTS

THE CASE OF IDEAL TYPE THINKING

Like many fundamental units of social thought, the precise origins of ideal type thinking are obscure and almost impossible to identify with any particular historical epoch, school of thought, or individual personality. However, many believe, as P. A. Sorokin suggests, that the origins of ideal typical phenomena trace back to the time of Confucius and his notion of five fundamental social relationships, which bear a distinct similarity to F. Tönnies' more modern ideal typical conceptualization of Gemeinschaft and Gesellschaft. (F. Tönnies 1957:vii) Sorokin further goes on to say that ideal types may also be identified with Plato's Republic and Laws, Cicero's analyses of true and false friendship, St. Augustine's theory of the Church and the City of God, and Ibn Kaldun's History of Berbers. (F. Tönnies 1957:viii) The point is that it is not difficult to identify a vast diversity of social thinkers who were perhaps initially responsible, either individually or collectively, for original ideal type thinking.

Plato's Forms perhaps most clearly communicate the essence of original ideal type thinking. Plato notes in dialogue with Glaucon:

> Shall we begin the inquiry according to our ordinary method? We have been in the

habit, if you remember, of positing a Form, where we use the same name in many instances, one Form for each 'many'.
'I do'.
And shall we take whatever 'many' you please. For example, if this will do, there are many beds and tables.
'Surely'.
But for these articles there are two Forms, one of a bed, and one of a table?
'Yes'.
And have we not also been in the habit of saying, that it is by looking at the Form that the manufacturer of each article makes the beds of the tables which we use, and so will other things? For no manufacturer manufactures the actual Form, does he?
'Certainly not'.
Now consider this manufacturer. What would you call him?
'Whom'.
He who by himself makes all things which are made by all the different craftsmen.
'A marvelous clever fellow'.
Wait a little and you will soon say that with more reason. For this same craftsman is not only able to make all manufactured articles, but he makes all things that grow from the earth, and fashions all living creatures, himself with the rest of them and, content with that, fashions earth and heaven, and the Gods and all things in heaven, or in Hades under the earth.
'What a perfectly marvelous genius!' he said.
Do you not believe me? I asked. Tell me. Do you think there is no such manufacturer at all, or do you think that a man might be in a certain manner a maker of all these things and in another manner not? Don't you see that you yourself could make all these things in a certain manner?
'And what is that manner?' he said.
It is not hard, I answered, but a frequent and easy mode of manufacture. It is most

> easily done perhaps if you take a mirror and turn it round to all sides. You will soon make a sun and stars, the earth, yourself, and other living creatures, manufactured articles and plants, and everything we have just described. (1969:296-297)

The significance of this rather lengthy quotation is that Plato's Forms clearly represent qualities of the mind or intellect which are not observable in and of themselves. That is, many people build and make use of tables and beds, but this would be impossible if the Form itself were not there. Where Forms come from Plato doesn't say other than that a Form is a name we posit for many of the same. This sameness appears nothing more than a ghost or shadow in the mind without which actual perception of objects would not be possible. The suggestion that a man can be a manufacturer of all things and yet a manufacturer of nothing without that realization, as Glaucon with his innocence implies, further emphasizes that attention to a Form is what makes a perception of an object meaningful. Thus, a Form is a mental image--an ideal type not of what is but of what must be. As G. Walsh points out:

> To understand what is going on in the world around us we accordingly need to rise to the apprehension of Forms. (1966:29)

The major difficulty in conceptualizing precisely what Plato meant by his Forms is perhaps a deep-seated skepticism on the part of the scientist as to the ultimate respectability of a concept which appears to lack verification by the senses.

G. Walsh once again notes:

> No one thinks of a modern physicist as enamoured of the "beyond" because he postulates unobservables, which are in one sense accessible to thought alone; his purpose in this is plainly enough to explain what is happening here and now. Nor do we suppose that economic theorists must be escapists because the things they deal with, acts of economic men or systems of perfect competition, have no precise counterparts in the familiar world but exist only in thought. We know that their point in studying these ideal (typical) entities (the phrase itself is Platonic) is to illuminate actual economic transactions. Belief in unobservables, or in objects that can be grasped by thought alone, can, as these examples show, be entirely respectable. And there is at least some ground for interpreting Plato's belief in "Forms" along these lines. (1966:29-31)

This evidence tends to support the view that Plato's Forms and ideal types were originally constituted as thought constructs devoid, for the most part, of actual empirical referent. Further detailed discussion of the consequences of a lack of observability in ideal typical constructs will be dealt with in a later section devoted to the problem of abstraction.

If then, as it seems to be, the original nature of ideal types is derived at least in part from the socratic dialogue of Plato, the problem becomes to reveal their emergent character in other avenues of social thought.

Beginning with the social and political philosophy of the late sixteenth century, ideal typical conceptions of man in a state of nature, either good or evil, were

reflected in the works of T. Hobbes, J. Locke, and J. Rousseau. The nature of man controversy in these works is conceived of as ideal typical because each of these social thinkers felt compelled to assert a statement on the original condition of man in a state of nature. For Hobbes, this was an anti-social state of general war and disorder; for Locke, the opposite held true, a state of perfect freedom; and for Rousseau, a similar state of original good and freedom. The key to the ideal typical significance of these arguments is that they each appear to posit a Form as to the ultimate good or evil of the human species. The consequences of that Form as to the ultimate good or evil of the human species may be seen to determine the outcomes of social and political action. The Form itself appears left relatively unquestioned as a shadow of what must be, but is nevertheless omnipresent in determining the social character of that which is, or appears to be. It is this shadow-like quality of the Form that appears to inform these early works on the nature of man that essentially defines its ideal typical character, and seems thus in keeping with its origins in the works of Plato.

A fundamental polarity on the nature of man, either good or evil, which is most obvious in Hobbes' Leviathan (1958) and Locke's Of Civil Government: Two Treatises, (1924) appears as another indication of its ideal typical structure when one considers polar types and the notion of the continuum. This aspect of ideal types and the nature of man will be

developed in the following section on the polar conception of human nature in the social thought of K. Marx and E. Durkheim. However, at this point it is necessary to consider the further emergence, recognition, and implementation of ideal type thinking in social philosophy. The works of A. Comte and H. Spencer are perhaps first indicative of this trend.

The ideal type thinking apparent in the scholarly work of A. Comte is best reflected in his law of three stages, as R. Konig conveys:

> The development of sociology as a science occurs, according to Comte, within the framework of a general orientation of human thought. According to the law of three stages, every single branch of human knowledge has to pass through three different (theoretical-methodological) stages before it reaches maturity: the theological or fictitious; the metaphysical or abstract; and the scientific or positive stage .... (1968:202)

Comte's positivistic approach to the development of science and knowledge, composed of the law of three stages, was his remedy for the crises of his time. It represented a rational natural scientific approach (based on experimentation and observation) to the problems of society. However, this rationalism is to some degree off-set by his ideal typical division of human thought on the basis of its general orientation into three developmental categories. The types or categories may be said to be ideal because they appear as constructs of the imagination which do not directly translate into observables apart from their abstract

conceptual context. The content of the stages themselves appear to deal with varying degrees of abstractness and observability in human thought which thus far in the analysis seem to represent the only clear-cut indicators of ideal type thinking in its original sense. However, since increasing rationality and scientific observability are in fact progressive elements of Comte's law, it seemingly represents one of the first attempts at scientizing or operationalizing vague ideal typical concepts. Similarly, H. Spencer's classical and positivistic evolutionary approach to the science of man and society reveals ideal types at its base when one considers his statement in the First Principles that:

> The deepest truths we can reach, are simply statements of the widest uniformities in our experiences of the relations of matter, motion, and force. (1912:509)

Thus far in this Chapter the intent has been to introduce the origins of what has been called ideal type thinking and to indicate the emergence and recognition of such thought in the works of various early social theorists. This is neither a complete nor comprehensive discussion of the origins of the ideal type. However, it does serve as a foundation for a more detailed view of the subject. Before embarking on such an analysis it is necessary to introduce one further aspect of ideal type thinking which deals with its emergent nature. This is the subject of the following section and is based upon the views of human nature found in

K. Marx and E. Durkheim.

THE POLAR CONCEPTION OF HUMAN NATURE IN THE SOCIAL THOUGHT OF KARL MARX AND EMILE DURKHEIM

A discussion of the emergence of early ideal type thinking would be incomplete without mention of the views on human nature of Karl Marx (1959) and Emile Durkheim (1964a). It is suggested that perhaps no two classical social theorists have done more to initially confuse the issues of man's relation to nature and by implication the method of the ideal type than Marx and Durkheim.

The focus of this analysis will center around a critical discussion and comparison of the similarities and differences inherent in Marx's and Durkheim's conception of human nature. This task in mind, it is deemed necessary to first provide a very brief sketch of the major features of each of the above authors' conceptions. This will serve both to aid in the continuity of critical comparison to follow, and to provide a framework within which to later proceed through a discussion of certain theoretical problems inherent in Marx's and Durkheim's conception.

Prefacing the remarks to follow, the suggestion is that a polar-ideal typical conception of human nature, which will be attributed to the above theorists, is inadequate and insufficient in its ability to deal in any precise or meaningful way with the substantively abstract notion of human nature. This suggestion may indicate the need for a

reformulated approach to ideal typical constructs which allows for their application to abstract phenomena.

Marx appears optimistic about human nature or the nature of man, for it is only in society which is advancing toward industrial capitalism with its characteristic increasing division of labor and specialization that Marx sees man as E. Fromm points out:

> ... as man not experiencing himself as the acting agent in his grasp of the world, but rather that the world, nature, others, and he himself remain alien to him. They stand above and against him as objects even though they may be objects of his own creation. (1969:43)

Marx's focus, in all of his writings, is the individual; and further as E. Fromm puts it in his book, Marx's Concept of Man, Marx believes that it is:

> ... first necessary to deal with individual human nature in general before dealing with human nature as it is modified in each historical epoch. (1969:25)

Following from Marx's focus on the individual, he posits that individual needs must be met by society. This is supported when Fromm states that according to Marx: All social arrangements must serve the growth and the unfolding of man. (Schaff 1970:$\underline{\bar{x}}$) This quotation clearly demonstrates Marx's focus on the individual, and his concern that society meet the needs of the individual.

Marx's concept of human nature essentially derives from his dichotomous conception of man, namely natural man and species man. The distinction between them is basic.

The primary distinguishing feature of natural man, according to B. Ollman, is that he is like an animal, he is indistinguishable from, and identical with his activity. (1971:82) Species man, on the other hand, is conscious and aware of himself as an individual active in pursuing his own ends. (1971:84) Further, natural man and species man in Marx's scheme are said to have certain powers and needs which in both cases reflect each other, or as Ollman puts it:

> Need is always attached to power in Marx's writings, as the means through which man becomes aware of the latter's existence. (1971:77)

In this sense, power and need always reflect each other both with respect to natural and species man. Natural man and species man are seen to have different but complementary powers and needs, the former's powers and needs providing the framework for the latter's. In short, as Ollman notes:

> There is an intimacy, in the total relationship between natural and species powers, which can be observed in such phrases as man's essential powers, or the essence of man. (1971:86)

It is important to note that Ollman believes the foregoing discussion of natural and species man to be:

> Marx's contribution to a broad theory of man's relationship to nature, which embraces along with much else, the five senses and their content. (1971:89)

To this end, a very brief introduction to some of the major features and concepts relative to Marx's conception of human nature, the following quotation from B. Ollman's book, Alienation, Marx's Conception of Man in Capitalist

Society, should provide some helpful insight:

> Human nature for Marx emerges as an expression which includes all that is of nature, as well as what is of man. The appearance and realization of man's powers in objects binds these two spheres inextricably together practically and conceptually. When Marx asserts that all history is nothing but a continual transformation of human nature, this is a claim about both man and his objects. (1971:81)

Turning now to the major features of human nature found in Durkheim, he, unlike Marx, is pessimistic about human nature in general. For Durkheim, the individual appears as an irrational bundle of egoistic instincts which must be controlled. It is society which is endowed with moral authority, and it is society's responsibility to control and structure the lives of egoistic self-seeking individuals so that they can truly be free in response to increasing specialization and division of labor through mutual interdependence. Society as characterized in the organic form of solidarity is seen as good in itself; it is all important, it is the first social fact, it is non-individual and non-psychological, and exists exterior to the individual but always exerts a constraining force upon him.

From the above discussion, Durkheim can be seen to differ with Marx, both in focus and in emphasis with respect to the individual and his nature--Marx's focus being on the human individual with certain powers and needs as he begins to realize himself, according to Ollman, as both

the subject and object of his own being (1971:82)--while Durkheim focuses on society as essentially the means through which egoistic individuals become human. These are basic differences in Marx's and Durkheim's conception of human nature and will soon be seen to develop into polar-ideal typical expression of the nature of man which, up until the present time, has not been adequately expressed.

In contrast to Marx's dichotomous conception of human nature as revealed through and by the powers and needs of natural and species man--how they reflect each other, Durkheim posits, as R. N. Bellah conveys, a constitutional duality inherent in man. (1973:150) Bellah further points out that:

> The duality of human nature is characterized by the inner contradiction of body and soul, sensation, and moral-conceptual thought, egoism and altruism, the personal and impersonal, which are the major characteristics of our nature. (1973:153)

and maintains that these inner contradictions:

> ... are associated with each other, mutually deny each other, and are never completely attainable in pure form at either end of the dualistic concepts. (1973:150)

In short, Bellah conceives that for Durkheim:

> ... the dualism of human nature is never solved, just as for example, we can never pursue moral ends without causing a split within ourselves, without offending the instincts that are most deeply rooted in our bodies.... (1973:152)

and that:

> Man is according to Pascal's formula, both an angel and a beast, and not exclusively one or the other. (1973:153)

It should be noted at this point that Marx's concept of human nature acknowledges the duality-dualism of human nature that Durkheim puts forth, but denies it as a problem. In Marx's dialectical approach, once man realizes himself and is conscious of himself as the real appropriator of his own essence, he is free from the egoistic-altruistic conflict because, according to E. Fromm:

> Need and enjoyment lose their egoistic character, and nature loses its mere utility by the fact that its utilization is and has become human utilization. (1969:29)

or in other words:

> The eye has become the human eye, and the object a social human object, an object emanating from man for man. (1969:96)

As previously mentioned, Marx sees it first necessary to examine human nature in general before looking at human nature as modified in each historical epoch. Durkheim, however, as Bellah notes:

> ... deals only with man as he is conditioned in the course of history, since it is only in the course of history that he is formed. (1973:150)

This may appear as a relatively minor difference in approach between Marx's and Durkheim's conception and treatment of human nature, but from Marx's perspective it is indicative of the fact that, according to A. Schaff:

> Marx views man at birth as a recognizable and ascertainable entity--not just biologically and anatomically, but also psychologically. Man at birth is not a blank sheet of paper on which culture writes its text. (1970:x)

In sum, the implication of the foregoing is that this difference in approach and focus in Marx and Durkheim have, by and large, determined their subsequent elaborations on human nature.

At this stage in the discussion it is necessary to pause and summarize briefly. In outlining some of the major features in Marx's and Durkheim's conception of human nature, a number of differences have been revealed and discussed. These have included differences in focus, orientation, and approach and need not be discussed further. The following will be devoted to an elaboration of their theses on the subject of human nature with attention to other major differences between them, with the exception of a short section on some general points of agreement.

One of the major premises in Marx's conception of human nature has to do with what sets man apart from animals and other beings. Ollman writes that for Marx:

> It is the species man who possesses qualities uniquely his own, that distinguishes man from other living things. (1971:76)

For Durkheim, however, it is not the species man's unique characteristics that set him apart from other living beings, but it is the dualism of human nature. Referring to this

dualism in Durkheim's view, Bellah notes:

> It determines our misery because we are condemned to suffering, and our grandeur because it separates us from all other beings. (1973:154)

Marx and Durkheim have radically different conceptions of what constitutes freedom and independence for man. Fromm notes that in Marx's view:

> Freedom and independence are based on the act of self-creation, a being does not regard himself as independent, unless he is his own master, and he is his own master only when he owes his existence to himself. (1969:37)

Durkheim to the contrary might conceive of the freedom of man as based on the mutual interdependence of men on men--with the weakened collective conscience in today's organically solidary society, the tie that binds people together can only be one of interdependence. Freedom for Durkheim is the positive and functional outcome of the division of labor, and for Marx it is the very reason for man's enslavement and alienation. In this connection, the aim of society for Marx, according to Fromm:

> ... is not the production of useful things as an aim in itself, because the production of too many useful things results in too many useless people. (1969:36)

Durkheim, again in contrast to Marx, would quite probably envisage production as an aim in itself, thereby causing an increase in specialization and therefore contributing to individual freedom, again through the increased mutual interdependence thus created.

One of the most blatant differences between Marx's and Durkheim's conception of human nature concerns the question of means and ends with respect to the individual and society. For Marx, as Fromm notes:

> Man must always be an end in himself, and never a means to an end. (1969:53)

Seemingly, therefore, it would appear that for Durkheim man really has no existence except in his relations to others within society. This would imply that man is or has become little more than a means to the end of society as a whole.

More light may be shed on the conception of human nature in the works of these theorists if one examines them in terms of their differing views on man, society, and religion. Durkheim and Marx represent extreme polar opposites on these dimensions. The essence of society for Durkheim is religion; they are one and the same by definition. Society in its capitalistic state for Marx is the source of the psychological alienation of man, and religion while seen by Durkheim as integrative of people, being functional to the emergence of ideals, is, for Marx false consciousness. It prevents people from attaining self-realization and class consciousness; it is the opium of the masses. For Durkheim, society cannot exist without religion; for Marx, the abolition of religion is necessary to man's self-realization.

After outlining and discussing numerous points of difference in Marx's and Durkheim's conception of human nature, it seems a contradiction, or at least a very strange

anomaly, that they should agree on anything. The fact is, however, in spite of the fact that Marx and Durkheim have radically different models of society (Marx's radical revolutionary model as opposed to Durkheim's conservative evolutionary model), they do share or agree on a number of points, not all of which relate specifically to human nature but are important in their own right and should be mentioned in passing. First, however, with respect to human nature, the single thread which appears to link these divergent conceptions of Marx and Durkheim is that they both conceive of individuals as guided by their own self-interest. For Durkheim, this is a problem of the dualism of human nature which can never be resolved, but which can and must be controlled and modified by restoring a moral consensus, and this is society's responsibility. For Marx, while individuals are guided by self-interest, at least to some degree, egoism is not the same problem in his scheme as it remains for Durkheim, and it eventually disappears as human desires and needs become human. Both Marx and Durkheim agreed that society is moving toward industrial capitalism; they also agreed on the division of labor in society as existing and increasing. Further, they both agreed on the existence of conflict in society, but for Durkheim this was because of a decline in the moral consensus in society and the secularization of society, or the use of science and the scientific method. Thus, Marx and Durkheim do share a number of opinions as to the nature of society but, as is often

revealed with a closer look, the shared opinions are often for different, often opposite reasons.

To be succinct, hopefully without losing the essence of what Marx and Durkheim meant by human nature, Marx's conception of human nature in its beginnings is related to a broad theory of natural man's relations to nature, to the objects in his world, and the self-realization he acquires in the realization that he is both the subject and object of these relations. On the other hand, Durkheim's conception of human nature derives ostensibly from an irresolvable inner conflict between pursuing that which is instinctually inherent and that which is socially desirable. Man is perpetually egoistic in society for Durkheim whereas he has the potential for self-realization in Marx's view.

This appears as the fundamental polarity in the social thought of Marx and Durkheim on the nature of man. It is seen as further characteristic of the emergence of ideal type thinking because it restates, although in slightly different terms, the same indiscrete polarity between assumed positive and negative aspects of man's nature as first indicated in the works of Hobbes, Locke, and Rousseau. In fact, regardless of the similarities and differences demonstrated in this section as inherent in their approaches, which may be characterized as phenomenological and historical-functional respectively, Marx's and Durkheim's theses still manage to crystallize around the age-old ideal typical polarity of good versus bad, egoistic versus altruistic, or

black versus white, etc., broadly conceived. In other words, despite man's seemingly ever increasing technological expertise in systematizing his physical environment, at least at the conceptual level, his social and psychological milieu remains primitive at this same level.

L. V. Bertalanffy notes:

> Science has conquered the universe but has forgotten or actively oppressed human nature. This is at least part of our trouble; what we need--not only in academic psychology but even more in modern life which is manipulated by robot psychologists in the mass media, in advertising and politics--are not hypothetical mechanisms better to explain some unorthodox behavior in the laboratory rat, we need a new conception of man. (1968b:9)

What Bertalanffy makes clear in this quotation is that there is an extreme need for a science of human nature, not a robotic conception but one which uses the tools of science to humanly and accurately express the significance attached to being human. The inability of Marx and Durkheim to add precision and predictability to the dynamics of man's nature seems to stem from an inadequate and indiscrete percept of the ideal typical phenomena that inform their theses.

This inability appears largely as a formal theoretical problem founded on a basic confusion and ambiguity in ideal or constructed type formulation in social science which has persisted from their documented origins and beginnings to the present time. A consideration of some of the more contemporary bases for this confusion is considered vital

preparatory to a systems reformulation of the nature and function of these phenomena.

CONFUSION AS TO THE STATUS, NATURE, AND FUNCTION OF IDEAL TYPICAL FORMULATIONS IN SOCIAL SCIENCE THEORY

I have purposefully left the consideration of precisely what an ideal type is and how it is, has been, or may be distinguished from other type concepts in the literature to this section which addresses itself to confusion concerning its status, nature, and function. The reason for this decision is a logical consequence and emergent property of the manner in which ideal types tend to be characterized. Succinctly, the nature of the problem appears to be that ideal types, possibly due in part to their indiscrete origins and early applications, have of late been conceived and defined not by statements of what they seemingly represent but by assertions of what they seemingly do not represent. In short, they have generally been defined by a non-selective generalized process of elimination whereby what they are or may be is established by what they are not or do not seem to be. The result has been a series of conflicting negative assertions from various theorists which do not stand the test of elementary logic or proof. Since it is impossible to prove a negative assertion by genus proximum and differentia specifica, ideal types appear to remain aloof from the logical tools of the social scientist.

Aside from this definitional problem dictated by classical logic the task remains in this Chapter to examine the conceptual problem of the ideal type, to distinguish it

as well as possible from other type concepts, to indicate its importance in empirical and comparative investigation, and finally to demonstrate why contemporary views of the nature and function of the ideal type no longer serve the interests of science and subsequently require reformulation.

Beginning then with the conceptual problem of the ideal type and how it may be distinguished from other type concepts, E. A. Tiriakyan notes on the typological method in general:

> Typological classification, as a subdivision of taxonomy, has characterized a considerable part of the culture of the social sciences; paradoxically, the notion of types and this method of classification have also been the object of severe methodological and ideological opposition. Few subjects in taxonomy are understood in more different ways or are more misunderstood than the nature and use of types. (1968:178)

It would appear from this general statement of the diversity and confusion that seems to characterize the nature and use of type concepts in social science that misconceptions and obscurities must of necessity carry over from this state of generalized confusion to the specific instance of the ideal type as a constituent element of the typological procedure.

Perhaps the most cogent schema presented to date with respect to the conceptual differentiation of the myriad of type concepts found in the literature is that of C. G. Hempel in his essay on "Typological Methods in the Natural

and Social Sciences." (1965:155-171) Hempel distinguishes between type concepts on the basis of three categories: classificatory types, extreme types (polar), and ideal types:

> Classificatory types are simply systematic classifications of objects with reference to their physical properties; ex. the average age of the American college undergraduate. The object of the classificatory type is the search for natural as distinguished from artificial classes. Extreme types are characterized by a subject matter which cannot be constructed as classes with neatly demarcated boundaries. That is, a clear-cut distinction between introverted and extroverted personalities would prove an artificial exercise. In this case, extreme types are only important in defining a range between the pure types of introversion and extroversion thus serving as conceptual points of reference or gradations within which all actual occurrences may be found.... If an extreme type is to function as a legitimate scientific concept in scientific statements with a clear objective meaning, then explicit criteria for the more or less of comparison must be provided. These criteria may take non-numerical comparative form, or they may be based on quantitative devices such as rating scales or measurement. Extreme and classificatory types belong, as a rule, to an early stage in the growth of a scientific discipline, a stage which is concerned with the development of a largely empirical concept system and with its use for description and for low grade generalization. Ideal types in contrast to classificatory or extreme types are usually introduced without even an attempt at specifying appropriate criteria or order... they are not used for the kind of generalization characteristic of extreme or ordering types, but are invoked as a specific device for the explanation of social and historical phenomena. (1965:159-161)

Hempel then argues that this conception of ideal types

reflects an attempt to advance concept formation in sociology beyond empirical generalizations to the construction of theoretical systems or models. Further, from this statement on the conceptual identification of various type concepts, only the ideal type emerges as a systems theoretical notion. Extreme and classificatory types are seen to have little theoretical input and, by and large, function as low grade generalizing concepts without explanatory capabilities.

Hempel's position is essentially in keeping with that of this thesis with reference to the distinguishing features of the various type concepts, especially the ideal type. However, instead of differentiating classificatory, extreme, and ideal types on the basis of their potential for empirical and theoretical generalization or explanation per se, more fundamental criteria are perhaps available to accomplish this task. If, for example, the criteria of differentiation were seen to be simply tied to the processes of human symbolic communication, the possibility may exist of a fundamental trifurcation in the vocabulary of science such that all ideas capable of transmission by whatever means occur within the following framework of abstraction--concrete, abstract, and formal.

The concrete level might be defined in terms of those aspects of human experience which we internalize as observers of natural phenomena. Classificatory types then may be seen as the symbolic expression of this concrete level of

discourse. The abstract level is qualitatively different from the concrete in that we no longer have direct sensual access to the phenomena we experience. We have removed ourselves by an undetermined and undefined degree to the position of viewing phenomena of experience as surrealistic or without actual substance. The mechanism which may accomplish this removal may be a function of the cognitive-reflective, or representational capacity of the mind, but to use cybernetic terminology one may not need to specifically identify an operator to affirm the existence of an operand--the operand in this case being the abstract level of discourse. Extreme or polar types in this schema appear to symbolically represent this characterization of the abstract level of discourse because they define an undetermined range of phenomena which can only be described in general indiscrete terms.

The formal level of discourse might be conceived as dealing with those phenomena of experience which are fully representational as in the example of pure mathematics. In this case, the operator is a constructed system of concepts with a highly specified and integrated set of logical internal relations. As such, the ideal type might be developed as a fully representational concept capable of formal specification. Thus, at least the possibility of differentiating type concepts need not be viewed only in terms of generalization or explanatory potential, but may also be seen as differentiated on the basis of the degree

of symbolic representation required or present in each case.

Regardless of the basis for the differentiation of type concepts, the ideal type is nearly always seen as a special case whereby the normal classificatory and ordering criteria seemingly do not apply. Nevertheless, as T. Parsons points out in discussing the ideal type:

> The scientific legitimacy, indeed the indispensibility of such concepts is not to be questioned. (1937:33)

or further as J. Rex notes:

> What makes theory and hard empirical data live sociologically are the ideal types of social structure. Anyone who fails to concern himself with the construction of these will fail to do sociology and will be ill-equipped to help us in our task of demystifying the modern social and political world. (1974:65)

It is significant to note in the above quotations that while the ideal type has obviously been a legitimate and accepted element of social thought for many decades few, if any, have been able to successfully integrate it into their work. The reasons for this difficulty may be a result of the fact that, as D. Martindale suggests:

> There is no consensus as to whether ideal types are conceptual forms, methodological devices or theories. (1959:57)

and therefore they are often considered as functioning or not functioning at one, two, or three levels of analysis respectively. This lack of consistency in the treatment of ideal types at various levels of analysis in the literature

is evidenced in Martindale's observation that:

> Ideal types tend to be viewed by Max Weber, R. M. MacIver, and R. K. Merton as valuable methodological tools, whereas by T. Parsons, J. C. McKinney, and J. W. N. Watkins, as systematic theories. (1959:58)

J. C. McKinney and E. Tiriakyan further add to the confusion in their statement that:

> Considerable ambiguity remains with respect to the proper functioning of types in the chain of inquiry. Whatever else a constructed type may be, it is clearly a conceptual tool. (1970:246)

Despite this comment on the conceptual value of typological procedure, Tiriakyan in a different work supports the theoretical nature of the typology when he says:

> That the more explicitly stated the typology, including the relationships between types, the more the typology functions as a theoretical model... useful in its explanation of the virtual tendencies of a system in the light of which actual discrepancies may be investigated. (1968:179)

The significance of the above quotations is that they are indicative of a vast body of knowledge which portends to represent the scientific treatment of the nature and function of ideal typical phenomena in recent social science theory and empirical research. Clearly, there is little agreement in the works alluded to which, if present, might tend to favor one particular theoretical, methodological, or conceptual orientation over another. In order to help explain this present confusion over the precise status of the ideal type, the works of Max Weber may provide some

insight.

P. A. Sorokin notes the following of Max Weber's concept of the ideal type:

> It is possibly the most serious attempt to clarify the concept of the ideal social type as a specific method in an investigation of social problems. (1928:720)

and J. C. McKinney supports him in saying:

> Max Weber made the greatest contribution to the delineation of the procedure of the ideal type, and also the use of it in both historical and social scientific analysis. (1966:1-2)

These two quotations, if taken somewhat out of context, would seemingly suggest that Max Weber's specification of the nature and function of the ideal type in social theory is complete and without fault or inconsistency. However, as the following statement from his own work suggests, Weber's conception of the ideal type is far from being completely integrated in any systematic sense:

> Whatever the content of the ideal type, be it an ethical, a legal, an aesthetic, or a religious norm, or a technical, an economic, or cultural maxim or any other type of valuation in the most rational form possible, it has only one function in an empirical investigation. Its function is the comparison with empirical reality in order to establish its divergences or similarities, to describe them with the most unambiguously intelligible concepts and to understand and explain them causally. (1949:43)

Weber's remarks appear to lack consistency and integration in this statement for he seems to claim that ideal types have one and only one function in an empirical

investigation, namely, the comparison with empirical reality in order to establish similarities and differences. The difficulty arises when he, in the same sentence, imputes two other distinct and separate functions to ideal types, specifically understanding and causal explanation. Comparative analysis, understanding, and causal explanation cannot be reduced to a single unit idea, for if one were to accept the function of ideal types as useful devices for comparison their status would be that of a heuristic methodological tool. However, in attributing to them the further function of understanding and causal explanation, we must also accept them as systematic theories or, in the least, theoretical models. Weber appears to hopelessly confuse the three ideas and consequently the three different levels of abstraction, and it would therefore seem that T. Parsons is quite correct in submitting that Weber had a fear of abstraction and that the reason Weber did not develop a theoretical system out of his methodology was because he failed to overcome the empiricist monistic fallacy. (1937: 635)

Weber's difficulties with levels of generalization and abstraction are also evident in his statement on the formation of ideal types. Weber notes:

> An ideal type is formed by the one-sided accentuation of one or more points of view and by the synthesis of a great many diffuse, discrete, more or less present and occasionally absent concrete individual phenomena which are arranged according to those one-sidedly emphasized

> viewpoints into a unified analytical construct, which in its conceptual purity cannot be found anywhere in reality. It is utopia. (1949:90)

Therefore, an ideal type is, for Weber, an analytical construct, which in pure form cannot be found in reality--a tautology when one considers that an analytical construct is by definition abstracted from reality. For Weber to state unequivocally that a pure ideal type cannot be found in reality would seem today somewhat premature. For instance, just because an analytical construct (A) is abstracted from its content (C) for purposes (X) or (Y), it does not necessarily follow that (A) is less real than (C) given (X) or (Y); it follows only that (A) and (C) reflect the same reality (R) removed from each other by degree only given (X) or (Y) as stated. In short, an analytical construct--an ideal type, and an empirical expression of some component of that construct do not necessarily warrant a division of reality on the basis of observable existence but, rather, may mirror different aspects of a single reality interpreted in symbolic fasion. Given this, the only difference between an analytical construct and a proposed empirical reality may be the rigor one applies to the symbolic representation of either. The amount of abstraction required to accomplish these tasks is seemingly not recognized in Weber's thought, thus prohibiting the clear specification of an ideal type theory. As E. A. Shils notes in the introduction to Weber's Methodology of the

Social Sciences:

> Weber's methodological writings raise important questions regarding the structure of a theoretical system... he brings the problem before us in a most interesting way, but leaves it unsolved. (1949:VII-VIII)

It is evident that questions regarding the precise nature and structure of theoretical systems and the problems of objectivity in social science were not by any means solved at the time of Weber's writing. In fact, today, it would appear that scholars still struggle with the same problems that Weber addresses in his methodological works. What is continually challenged is the ability of scientists to utilize theoretical systems of thought in an objective fashion. This remains as contentious an issue today as it was in Weber's time. The fact that Weber leaves questions of this nature unsolved is clearly indicative of the continued significance they have on both the direction and goals of scientific inquiry.

It may be suggested that, if sociology is to mature and emerge as a vital and rational discipline in Weber's sense, the disparity between theoretical systems and human values can and must no longer be maintained. Social scientists can no longer afford the luxury of specialized empirical training at the expense of theoretical understanding, nor can the theoretician afford to intellectualize away the substance and input of observables. There is a critical need in today's scientific community for generalists whose specialty is the integration of synthetic and actual

experience. The hope of a maturing science would seem to rest on the strength of its transformations, from the synthetic to the actual and vice versa. A design which purports to deal with variables of human substance must integrate human values with the products of human experience or be doomed to failure.

Having at this point introduced the conceptual problem of the ideal type and considered various ways and means by which it may be distinguished from other like concepts in the literature of social science, ideal types have emerged as often misunderstood but nevertheless vital notions essential to the comparative analysis of social phenomena. Once again, it is with their demonstrated essential but imprecise nature that this thesis takes issue. The hopes of a reformulation of the input of ideal types to social science theory rest upon the ability of existing rules and procedures in sociology to adequately define or systematically relate the content of the concept of the ideal type.

The suggestion has been that social science has presently neither the conceptual clarity nor the theoretical sophistication necessary to integrate the veritable flood of obtuse and often divergent views of the nature and function of ideal typical phenomena. The alternative to this state of confusion is to employ a natural scientific paradigm where, through a series of systems isomorphisms, ideal typical formulations in both natural and social science

may be reconstituted as general systems notions--thus open to the influences of combined natural and social subsystems. This, in effect, means that the ideal type is now open to investigation by a set of conceptual tools which are not necessarily bound and set by any particular discipline or theoretical orientation. These tools, if used wisely, may make possible the required integration of ideal type theory and subsequently a clear specification of the nature and function of ideal types as interdisciplinary phenomena.

The natural science systems isomorphisms employed with respect to the ideal type have largely come out of two branches of theoretical physics: quantum mechanics and relativity theory. The similarities established between these branches of physics in terms of the observability of the phenomena with which they deal, coupled with the effects of investigation upon the phenomena in which they deal--as in the case of the illumination of an electron by a photon of light--constitute a set of analogous systems problems for the social scientist examining the observability and testability of social ideal types. Yet the precision with which the theoretical physicist addresses these problems is apparently absent in the social arena. A combined systems approach which <u>a priori</u> includes the idea of a precise specification and utilization of ideal types in its possibility space may be required.

As indicated earlier the other systems element or component which is semmingly required if one is to success-

fully attempt at least the possible integration of ideal typical phenomena in social science is the problem of variation in terms of their interpretation as meaning structures which impinge upon and indeed function at the individual level of cognitive organization. While the evidence is far from conclusive as to whether or not ideal types can or do function at the level of the individual, the works of Plato and Weber, as indicated in Chapter One, would suggest that they do potentially influence individual thought and action. The certainty dilemma proposal attempts, in the following chapter, to provide a systems road map to the question of the potential operation of ideal types at the individual level of experience, the ultimate goal being a working cybernetic model.

CHAPTER III

THE CERTAINTY DILEMMA

INTRODUCTION

C. G. Hempel notes:

> Ideal types can serve their purpose only if they are introduced as interpreted theoretical systems, i.e. by (a) specifying a list of characteristics with which the theory is to deal, (b) formulating a set of hypotheses in terms of those characteristics, (c) giving those characteristics an empirical interpretation, which assigns to the theory a specific domain of application, and as a long range objective, incorporating the theoretical system into a more comprehensive theory. The method of the ideal type then becomes indistinguishable from the methods used by other scientific disciplines in the formulation and application of explanatory concepts and theories. (1965:171)

In the above quotation Hempel clearly addresses himself to the ideal type as a theoretical systems notion. He further specifies the necessity of defining the operation of such a system by establishing specific parameters whereby a precise indication of its area of application may be determined, subsequently yielding a measure of empirical applicability and testability. This procedure may be seen to be representative of the systems reformulation of ideal types subsumed under the name: the certainty dilemma proposal.

This final chapter of the thesis will deal exclusively

with the certainty dilemma proposal and subsequent theoretical model as an example of a systems reformulation of ideal typical phenomena. The nature and function of ideal types as general systems concepts will be explored vis-à-vis the operation of the certainty dilemma model, and the possibility of a sociological technology based upon the implications of this model and its cybernetic simulation will be presented.

In general terms, the certainty dilemma proposal attempts to deal with elements of human experience on the basis of the amount of certainty or uncertainty with which an individual thinks and acts at various points in space and time in the species life cycle. The suggestion is that certainty and uncertainty represent omnipresent qualities of the mind which may have the capacity to influence human thought and action.

The essential nature of the certainty dilemma proposal is that it may be seen to have a number of the characteristics of the ideal typical phenomena discussed to this point in the thesis. Foremost among these characteristics are the concepts of limited observability and differential levels of abstraction. To these basic characteristics, the certainty dilemma proposal adds the Newtonian notions of force and motion to a polar continuum of relative certainty. The significance of the Newtonian model upon which the certainty dilemma is fashioned is that it may be seen to better account for linear gradations in certainty and uncertainty moments

(Cun moments) as well as the relative improbability of the realization of the polar limits of the model, namely absolute certainty and absolute uncertainty. Newton's laws of motion may then be seen to suggest that particular states of this moving ideal linear continuum are more probable than others, and that the kind of motion exhibited at a point in time and space in an individual's experience will be reflected in that experience at that particular place and point in time.

What is suggested is a systems interpretation of ideal typical phenomena in science generally which, in effect, functionally incorporates past limits of ideal typical models, both theoretically and observationally, such that a new ideal typical model which derives its strength from the demonstrated inadequacies of those types that have gone before may be constructed. Such a construction is replete with a number of serious problems and in many cases the assertions and assumptions made may appear outlandish or, in the least, contentious. However, since many view the general systems viewpoint as an outlook or orientational schema as opposed to a prescribed theory of theoretical investigation, the more foolish the assumptions and assertions may appear at the outset may constitute their strength at the conclusion of the analysis. As K. Boulding suggests in his article on "General Systems as a Viewpoint":

> Even the most renaissance of renaissance men in these days cannot hope to know anymore than a very small fraction of what is known by somebody. The general

> systems man, therefore, is constantly taking leaps in the dark, constantly jumping to conclusions based on insufficient evidence, constantly, in fact, making a fool of himself. Indeed the willingness to make a fool of oneself should almost be a requirement for admission to the Society for General Systems Research, for this willingness is almost a requirement to rapid learning. (1964:36)

In other words, perhaps all that can be asked of the propositions in a general systems reformulation of ideal types is as L. V. Wittgenstein notes: ... that they make enough sense to doubt them. (1974:2)

DESCRIPTION OF THE SYSTEM: REFORMULATION, DEFINITIONS, ASSERTIONS, AND ASSUMPTIONS

Beginning then, with the specification of the definitional limits of the certainty dilemma proposition and subsequent model, it may be seen to derive from the following statements and assertions:

1. Certainty is conceived of as an internally derived and/or externally observed state where there is deemed to be no doubt whatsoever that the subject or object of one's attention is not the subject or object of one's intention.
2. Uncertainty is conceived of as an internally derived and/or externally observed state where there is no doubt whatsoever that the subject or object of one's attention is the subject or object of one's intention.
3. Absolute certainty is an ideal state comparable to the notion of absolute zero in physics, which while closely approximated from time to time is never fully realized, attained, or reached. (Figure 1)
4. Absolute uncertainty is similarly never fully realized, attained, or reached. (Figure 1)

Interjecting for a moment in the specification of the model, the certainty dilemma proposal, at this point, may be understood at least conceptually by analogy to a physical system--namely, temperature limits. Absolute zero is a physical fact only insofar that science has not been able

to penetrate the boundary of - 273.15°C. It is therefore a conceptual ideal in the sense that it represents a rift beyond which heat, defined as molecular motion, has no meaning. Absolute certainty and absolute uncertainty may in this regard represent a systems isomorphism, or the conceptual equivalent in human experience of the cessation of molecular activity and, as such, similarly represent a rift in the conceptual abilities of the human being to attribute meaning to his experience, the closer it approximates the ideal types of absolute certainty and absolute uncertainty.

5. At any point in time or space, vector forces toward increasing certainty or uncertainty may be seen as impinging upon the individual with respect to a variable of attention or intention. (i.e. Perception and Motivation) (Figures 2 & 3)

The important points with respect to this assertion are that the certainty dilemma is an example of an ideal typical phenomenon whose relations are: (1) contextual--or specified in terms of space-time relationships, and it is significant to note that, as E. A. Tiriakyan suggests, most social science ideal types:

> ... are rarely contextual; the determination of types tending to exclude temporal and spatial considerations. (1968:179)

The certainty dilemma thus incorporates contextual considerations where most ideal typical phenomena do not. In fact, the certainty dilemma model is defined by space-time

variables and would be meaningless without them. (2) The fact that the certainty dilemma model deals with vector forces, or as W. R. Ashby notes:

> ... compound entities having a definite number of components which resemble variables but are more complex than ordinary numerical variables met with in ordinary mathematics in that they represent their natural generalization. (1958:31)

is indicative of certain mathematical skills which when applied to particular certainty and uncertainty relations adds a significant measure of precision and quantifiability to them as ideal typical phenomenon, a consideration which has been lacking in most treatments to date. The specifics of these vector relations will be established in the following pages. (3) The third significant aspect of assertion five is that it serves to integrate the posited ideal typical uncertainty relations with the perceptual and motivational field of the individual through the variables of attention and intention, thus systematically linking human experience, defined as perception and motivation, to the functioning of ideal typical phenomena--certainty and uncertainty relations. As previously mentioned, the possibility of linking ideal types to what goes on in the minds of men has historical and philosophical precedent but no theorist to date has been able to justify the operation of ideal types at this level of analysis. The story has been perhaps best summarized by E. A. Tiriakyan in that:

> Though the typological approach is most useful to differentiate meaningfully the

> aggregates of a population, it lacks the flexibility to deal with individuals on their own merits. (1968:179)

The suggestion is that the certainty dilemma proposal may create the flexibility necessary to deal with individuals and later aggregates by beginning with an integration of the perceptual motivational field of the individual with assumed ideal typical processes. It may begin with the limiting concepts of perception and motivation and later end with human experience in the broadest sense, which is psychosocial.

6. When there is a discrepancy between the subject and/or object of one's attention or perception and the subject and/or object of one's intention or motivation, uncertainty will increase relative to its previous state. (Figures 2 & 3)
7. When there is a close correspondence between the subject and/or object of one's attention or perception and the subject and/or object of one's intention or motivation, certainty will increase relative to its previous state. (Figures 2 & 3)
8. At any point in time or space the vector forces representing the discrepancy and/or correspondence between the subject and/or object of one's attention or intention will summate to yield a certainty-uncertainty moment. The result of this summation could be represented in a point value on a real number line. This would, of course, assume zero

to be the point value representing the ideal interplay of equal forces, with uncertainty moments increasing negatively to the left of zero, and certainty moments increasing positively to the right of zero. (Figure 4)

The intent of the above vector summation procedure is to create a set of complex generalized variables known as certainty-uncertainty moments which functionally permit the analysis of the cumulative effects of certainty and uncertainty in human experience. In this way, certainty and uncertainty, while diametrically opposed conceptually in their absolute extremes, may now be seen to reflect each other in a series of combined systems relations. The additive nature of the vector summation procedure then provides a natural generalization of the forces of both certainty and uncertainty and does not necessarily imply that one is better than the other in any ultimate sense, nor does it imply progression or regression from one to the other.

9. If a line defined by the point values indicated above were suspended in space from the zero midpoint, the attitude of the line will be observed to reflect certain characteristics of Newtonian motion. In short, the location of the certainty-uncertainty moments will, over time, effect a clockwise motion of the line about its axis, namely the midpoint. (Figure 5)

10. As certainty moments increase and/or decrease in number and duration, the attitude, direction, and velocity of the motion of the line will change accordingly. (Figure 5)
11. As uncertainty moments increase either in number or duration over time, certainty moments will decrease or remain constant. The line in this instance will tend to rotate anticlockwise, increase in velocity, and seek maximum amplitude. (Figure 6)
12. As uncertainty moments decrease either in number or duration over time, certainty moments will remain constant and/or increase. The line in this instance will tend to rotate clockwise, increase in velocity, and seek maximum amplitude. (Figure 6)
13. As certainty moments increase either in number and/or duration over time, uncertainty moments will decrease or remain constant. The line will thus tend to rotate clockwise, increase in velocity, and seek maximum amplitude. (Figure 6)
14. As certainty moments decrease either in number or duration over time, uncertainty moments will remain constant and/or increase. In this case the line will tend to rotate anticlockwise, increase in velocity, and seek maximum amplitude. (Figure 6)
15. Thus, it may be seen that uncertainty moment decrease and certainty moment increase both result in a line which tends to rotate clockwise, increase in velocity,

and seek maximum amplitude. Similarly, certainty moment decrease and uncertainty moment increase result in a line which tends to rotate anticlockwise, increase in velocity, and seek maximum amplitude. (Figure 6)

The conditions specified by statements eleven through fifteen are clearly ideal in their representation of the assumed relations between increasing and decreasing moments of certainty and uncertainty. The motion of the line in each case, whether in a clockwise or anticlockwise direction, exhibits constant properties of increasing velocity and amplitude. As such, the realization of any of conditions eleven through fourteen is teleologically determined in that their initiation enacts a seemingly irreversible process involving directionality, velocity, and amplitude. Further, conditions not ruled out by the previous or antecedent one of necessity rule out the other two--that is, statements twelve and thirteen versus statements eleven and fourteen. In either case, it would appear at this point that velocity and amplitude will increase indefinitely in one of two directions given a stated imbalance of certainty-uncertainty moments.

Two problems or questions are most evident at this point. If an imbalance of certainty-uncertainty exists, what prevents a perpetual imbalance from occurring once it is initiated, and how could the implied theoretical physics model handle the problem, let alone the case of the individual

actor in a social context?

To begin with, while an imbalance of certainty moments must be assumed to exist, it cannot be a perpetual one because the dictates of gravitational forces and inertia would eventually cause the motion of the line in each case to cease regardless of the magnitude of the imbalance at its onset. Thus, using the law of gravity as a cybernetic operator to describe the motion in the certainty dilemma model or operand is not to say that the operand will move in certain characteristic directions at a velocity of 9.18 meters/second^2, but rather it is to say that the model is acted upon by a natural force which separates the probable from the improbable motion states that the model can assume. Gravity is used in this model as a boundary or limiting concept for structuring the effects of certainty/uncertainty moments (Cun moments) in physical terms only. It has no analogy to human experience other than being, in the widest sense, a natural force.

In any event, the resulting attitude of the line in each of cases eleven through fourteen would, using gravity as a limiting concept, be fixed, stationary, and vertical. Thus, imbalanced moments of decreasing certainty and uncertainty seek resolution in the Newtonian model as a vertical motionless line. (Figure 7) Similarly, the assumed imbalance of Cun moments will seek resolution in the individual actor's case. However, it would be a systems improbability to assume that each and every instance of Cun moment imbalance

in an individual's experience were to resolve itself in such an idyllic fashion. Rather, one must assume the following:

16. That Cun moments in human experience occur continuously in the species life cycle.

17. That the resolution of Cun moment imbalance, while feasible in principle in the forms specified, is unstable and unrealizable at any point in the life cycle. This must be taken to be the case due to the possibility that equal and opposite aggregate moment changes may occur so close together in any discernable and/or discrete unit of time that the attitude of the line must oscillate rather than seek resolution. A near simultaneous clockwise-anticlockwise motion eventuates which causes the line to decrease in velocity and seek minimum amplitude. (Figure 8) This possibility clearly demonstrates that Cun moments must be characteristically and near simultaneously varied and similar in their nature, defined and undefined in their substance, and discrete and continuous in their effect so as to create sufficient flexibility and reflexivity in the genesis and dynamics of their systems relations and interrelations. In sum, a tendency toward Cun moment resolution or oscillation must occur almost simultaneously but definitely continuously in human experience.

Four transcendent universal crisis states in human

experience must now be introduced to the assumed tendency of Cun moments to seek resolution (maximum) and/or oscillation (minimum). The intersection and union of the following crisis states with these demonstrated tendencies of the model will be seen to negate system balance (oscillation minimum) and enhance system imbalance (resolution maximum) or negentropy. In this regard, the introduction of these crisis states into the scheme will be seen to create two new categories of line motion and attitude, namely oscillation (maximum) and resolution (minimum). The particulars of how these crisis states derive and affect the model generate from the following assumptions:

18. Human beings from the moment of their birth to the moment of their death strive for, or are persuaded to seek out, varying degrees of certainty in four critical areas:
    W. Biophysical maintenance of organism
    X. Limits of life
    Y. Immortality
    Z. Significant social relations

--where biophysical maintenance of the organism is assumed to represent a crisis of Cun moment effect over basic or elemental needs of an individual for food, clothing, and shelter--where limits of life constitute a continuous reminder to the mortality of man whose life forces may be interrupted without warning or apparent reason--and where immortality is representative of an assumed need for intergenerational

continuity or replacement through reproduction. The latter might be characterized as the need to leave something behind, or to have one's existence reaffirmed or even recorded in history either through offspring or the products of one's labor. Significant social relations are made up of those distinctly social variables which contribute to the individual's sense of worth or well being; low values on such variables may determine maladjustment, social isolation, alienation, and despair.

These assumed crisis points are not new and are implicit in the works of many scholars concerned with similar issues. Their influence in human experience is not meant to be seen as mutually exclusive or collectively exhaustive of the full range of potential crisis moments that may be possible within that experience. However, for the purposes of the model they serve to define the potential characteristic effects of the onset of such crisis states.

19. Further, the model presupposes that W = X = Y = Z in terms of their importance and effect and in notational form $(\forall_W)\ (E!_X)$ and $(\forall_X)\ (E!_Y)$ and $(\forall_Y)\ (E!_Z)$ at any point in an individual's life cycle. In other words, there is a one to one correspondence between any one crisis state and any other crisis state at any point in the life cycle of the human being. That is, they occur continuously and they occur together.

20. Varying degrees of certainty and uncertainty in

> each of these crisis states will have an independent but cumulative effect on all other Cun moments in human experience previously accounted for in such a way that previous tendencies toward Cun moment resolution (maximum) or oscillation (minimum) will be interrupted by an additive and cumulative crisis vector. This vector, regardless of its specific Cun moment content, will disequilibrate the model either toward or between resolution (minimum) or oscillation (maximum) (Figure 9), thus accomplishing the complete dynamic specification of the operation as a combined systems notion.

The certainty dilemma proposition effectively translates human experience viewed as a perceptual and motivational construct into a natural and social scientific model which clearly specifies the character of the nature and function of ideal types as interpreted within a combined systems perspective. Having at this point established both the specification and operation of ideal types as systems notions within the confines of the certainty dilemma model, it is necessary to consider how such a theoretical system might be meaningfully translated on the basis of its observable effects on human beings.

Perhaps the first step in empirically establishing the domain of application of the certainty dilemma model is through its cybernetic simulation. According to the Russian

scholars T. Klir and M. Valach, cybernetic modeling-simulation procedures are often applied to pairs of physical and abstract systems (1967:92) and, as such, correspond in principle to the (physical) Newtonian paradigm employed in the specification of the substantively abstract notion of the ideal type. In this case the certainty dilemma proposal is an example of such. Thus, the possibility of a cybernetic coupling of physical systems to social phenomena has been made somewhat of a reality by the vocabulary of systems-cybernetic research. W. R. Ashby confirms this statement in his account of the goals and objectives of the cybernetic viewpoint in science:

> Cybernetics is defined as the science of control and communication in the animal and the machine--in a word, as the art of steermanship.... Cybernetics is a theory of machines, but it treats not things but ways of behaving ... cybernetics deals with all forms of behavior insofar as they are regular, or determinant, or reproducible. The truths of cybernetics are not conditional on their being derived from some other branch of science .... Cybernetics offers one set of concepts that, by having exact correspondence with each branch of science, can thereby bring them into exact relation with one another .... Cybernetics is likely to reveal a great number of interesting and suggestive parallelisms between machine, brain, and society--and it can provide the common language by which discoveries in one branch can readily be made use of in the other. (1958:1-4)

Cybernetic simulation of the certainty dilemma model may thus be seen to provide the final necessary integrative viewpoint for a systems reformulation of ideal types. The

ultimate goal in this regard is the construction of a machine which can effectively and observably simulate the actual operation of the certainty dilemma model.

CYBERNETIC SIMULATION

While there are probably as many ways and means to cybernetically indicate the operation of the certainty dilemma model as there are versions of the ideal type, it is perhaps most easily approached as a problem of electric motor control where the problem itself is approached and is defined strictly in terms of mechanical requirements. The initial step in the construction of such a machine would require the attachment of an indicator to an electric motor shaft, in this case, as representative of the Cun moment real number line which has been posited as suspended in time and space from its zero midpoint. Assumed Cun moment forces acting in tandem may then be seen to require motion on the part of the machine. Therefore, in order to be able to simulate the set of all possible movements of the certainty dilemma model as defined, the machine must include the following modes of operation in its behavioral repertoire:

MODE NUMBER

1. Indicator must be capable of perfect horizontal hold-stop.
2. Indicator must be capable of perfect vertical hold-stop.

3. Indicator must be capable of clockwise 360° rotation about its axis with variable speed from slow to fast.
4. Indicator must be capable of anticlockwise 360° rotation about its axis with variable speed from slow to fast.
5. Indicator must be capable of assuming condition of resolution minimum or an oscillation about either side of the vertical axis of approximately 10° at variable speeds from fast to slow. (Degrees of oscillation in modes 5 through 8 are now relatively arbitrary and for visual effect only.)
6. Indicator must be capable of assuming condition of oscillation minimum or an oscillation about either side of the horizontal axis of approximately 10° at variable speeds from fast to slow.
7. Indicator must be capable of assuming condition of oscillation maximum or an oscillation about either side of the vertical axis between approximately 10° and 160° at variable speeds from slow to fast.
8. Indicator must be capable of assuming condition of resolution minimum or an oscillation about either side of the horizontal axis between approximately 10° and 160° at variable speeds from slow to fast.

The machine which can assume the above eight modes of operation may potentially demonstrate the outcomes of the certainty dilemma model. In other words, the motions

prescribed by the model are accounted for in this design for its cybernetic simulation.

In establishing the set of all possible motions of the certainty dilemma model as made up of the preceding eight modes of actual operation it becomes necessary to instruct the machine as to the precise order or sequential occurrence of the modes of operation given the constraints of the certainty dilemma model. This constitutes the introduction of logic circuitry to the machine and cybernetic control to the model.

The instructions which must be coded into the machine as to the order of events in the control of the certainty dilemma model generate a series of eight sequential operations whereby the attitude, direction, velocity, and amplitude of line motion are placed in an ordered series dictated by the set of possible Cun moment and crisis moment vector forces in operation in the model at various points in time and space. The first four of these sequential operations or instructions to the machine apply only to the functioning of the certainty dilemma model without the influence of crisis moment vectors and are provided only to emphasize the significance of the absence of such vectors. Further, the beginning of each operation is with the motionless horizontal indicator (line) signifying the ideal interplay of equal forces of uncertainty. The eight operations which follow function at arbitrary ten second intervals which serve convenience purposes only.

OPERATION A - SEQUENCE ONE

1. Machine indicator assumes motionless stable attitude about horizontal axis for time interval of ten seconds (mode 1).
2. Then, in response to Cun moments of increasing uncertainty or decreasing certainty indicator begins clockwise motion increasing in velocity and amplitude (mode 3) until
3. Gravitational forces cause amplitude and velocity to decrease to a condition of resolution minimum (mode 5) whereupon
4. All indicator motion ceases in condition of complete resolution about the vertical axis (mode 2).

OPERATION B - SEQUENCE TWO

1. Machine indicator assumes motionless stable attitude about horizontal axis for time interval of ten seconds (mode 1).
2. Then, in response to Cun moments of increasing uncertainty or decreasing certainty indicator begins clockwise motion increasing in velocity and amplitude (mode 3) until
3. States of equal and opposite aggregate Cun moment changes cause the indicator to assume a condition of oscillation minimum about the horizontal axis (mode 6) where

4. Over time all indicator motion ceases in a condition of the ideal interplay of equal forces (mode 1).

OPERATION C - SEQUENCE THREE

1. Machine indicator assumes motionless stable attitude about horizontal axis for time interval of ten seconds (mode 1).
2. Then, in response to Cun moments of increasing certainty or decreasing uncertainty indicator begins anticlockwise motion increasing in velocity and amplitude (mode 4) until
3. Gravitational forces cause amplitude and velocity to decrease to a condition of resolution minimum (mode 5) where
4. Over time all indicator motion ceases in condition of complete resolution about the vertical axis.

OPERATION D - SEQUENCE FOUR

1. Machine indicator assumes motionless stable attitude about horizontal axis for time interval of ten seconds (mode 1).
2. Then, in response to Cun moments of increasing certainty or decreasing uncertainty indicator begins anticlockwise motion increasing in velocity and amplitude (mode 4) until

3. State of equal and opposite aggregate Cun moment changes cause the indicator to assume a condition of oscillation minimum about the horizontal axis (mode 6) where
4. Over time all indicator motion ceases in a condition of the ideal interplay of equal forces (mode 1).

Thus far, operations (A) through (D) and sequences one through four exhibit the instructions necessary to machine operation without the influence of crisis moments in human experience. Machine tendencies have in each case been seen to cluster about minimum conditions of resolution and oscillation leading to the vertical or horizontal cessation of motion from either a clockwise or anticlockwise direction. As previously indicated, these conditions, while required in the behavioral repertoire of the machine, are unstable and unrealizable in the certainty dilemma model because of the disequilibrating nature of crisis moments in human experience. The following sequence of operations cybernetically define the influence of the onset of crisis moments in the certainty dilemma model.

OPERATION E - SEQUENCE FIVE

1. Machine indicator assumes motionless stable attitude about horizontal axis for time interval of ten seconds (mode 1).
2. Then, in response to Cun moments of increasing

uncertainty or decreasing certainty indicator begins clockwise motion increasing in velocity and amplitude (mode 3) where

3. Instead of completely responding to gravitational forces resulting as in operation A - sequence one (mode 5) where a condition of resolution minimum was established
4. The onset of a series of crisis moment vectors may be seen to initiate a condition of oscillation maximum (mode 7).

OPERATION F - SEQUENCE SIX

1. Machine indicator assumes motionless stable attitude about horizontal axis for time interval of ten seconds (mode 1).
2. Then, in response to Cun moments of increasing certainty or decreasing uncertainty indicator begins anticlockwise motion increasing in velocity and amplitude (mode 4) where
3. Instead of completely responding to gravitational forces resulting as in operation C - sequence three (mode 5) where a condition of resolution minimum was established
4. The onset of a series of crisis moment vectors may be seen to initiate a condition of oscillation maximum (mode 7).

OPERATION G - SEQUENCE SEVEN

1. Machine indicator assumes motionless stable attitude about horizontal axis for time interval of ten seconds (mode 1).
2. Then, in response to Cun moments of increasing uncertainty or decreasing certainty indicator begins clockwise motion increasing in velocity and amplitude (mode 3) where
3. Instead of responding to equal and opposite aggregate moment changes as in operation B - sequence two (mode 6) where a condition of oscillation minimum was established
4. Disequilibrating crisis moments may be seen to initiate a condition of resolution maximum (mode 8).

OPERATION H - SEQUENCE EIGHT

1. Machine indicator assumes motionless stable attitude about horizontal axis for time interval of ten seconds (mode 1).
2. Then, in response to Cun moments of increasing certainty or decreasing uncertainty indicator begins anticlockwise motion increasing in velocity and amplitude (mode 4) where
3. Instead of responding to equal and opposite aggregate moment changes as in operation D - sequence four (mode 6) where a condition of oscillation

minimum was established

4. Disequilibrating crisis moments may be seen to initiate a condition of resolution maximum (mode 8).

Operations E, F, G, and H, and sequences five, six, seven, and eight clearly show the nature of the influence of crisis moments in the certainty dilemma model. In each of these operations crisis moments have been seen to overcome the tendencies of the machine to disintegrate into a near motionless state. Thus, the normal functioning of the certainty dilemma model by its cybernetic simulation is one of near perpetual motion within certain limits instead of a static balance of opposing forces.

CONCLUSION

Throughout this thesis ideal types have been viewed as confused and misunderstood entities nevertheless vital to the advancement of sociological theory and empirical research. The certainty dilemma proposal-model, as an example of a much needed combined systems reformulation and interpretation of the nature and function of ideal types, has, I believe, satisfactorily demonstrated that imprecise ideal typical phenomena in social science may be given precise meaning or, more importantly, may be shown to operate simultaneously within a framework of abstraction that extends from concrete observable relations through symbolic representation to potential formal mathematical structures. The key to this potentiality has been provided by the general systems viewpoint. Ideal types do not represent the albatross which must be borne by social scientists before their disciplines can mature into exact sciences, but rather provide the necessary raw materials on which production of any sort depends. The problem has been, and will likely continue to be, a lack of flexible interpretive and integrative skills on the part of the social scientist which tends to prevent a particular scholar from perceiving and taking advantage of relational isomorphisms in different fields of study. This is certainly the case with ideal typical phenomena.

The cybernetic simulation of the certainty dilemma model is a significant step forward in an analysis of ideal typical

phenomena because it attempts to translate a set of possible systems theoretical relations into a set of probable and observable concrete outcomes. Operating in these terms, the possibility of a sociological technology which can provide the necessary interfacing between man, machine, and society becomes a distinct possibility. As G. M. Weinberg notes:

> The main role of models is not so much to explain and predict--though ultimately these are the main functions of science--as to polarize thinking and to pose sharp questions (1975:43)

or as S. Toulmin suggests:

> Complete scientific knowledge involves knowledge both of the explanatory procedures of a science, and of their application to nature. In and by itself the most fully worked out system can never constitute a science, since no formal system can tell us, still less guarantee, its own empirical scope and range of application. Nor can any abstract general theory ever in and by itself explain or present natural phenomena; rather it is scientists who employ this theory--in the particular manner in which they do, and with the degree of success they do to represent, and so explain, the properties of behavior of independently identified classes of systems or objects. (1972:172-173)

The limits of the certainty dilemma model are in keeping with the preceding statements of Weinberg and Toulmin. As such, the certainty dilemma model may be seen as a conceptual system or a general theory which attempts to include in its formulations the influence of ideal types on human experience. As Toulmin conveys, it could never

constitute a science, nor could it pretend to represent an infallible procedure for concretizing the effects of these influences. It does, however, pose sharp questions and provides an alternative means of explanation for the nature and function of ideal typical phenomena in social science theory.

The application of ideal types, as reflected in the certainty dilemma model, to the certainties and uncertainties in life experience is no longer a philosophical absurdity but a potentiality eager for the test.

The analyses in this thesis clearly indicate that ideal types are operative within a framework of symbolic abstraction which subsumes concrete observable relations through abstract representation to formal systems specification. They, therefore, must be conceived of as systems theoretical entities valuable for the purposes of theory construction and empirical research in science.

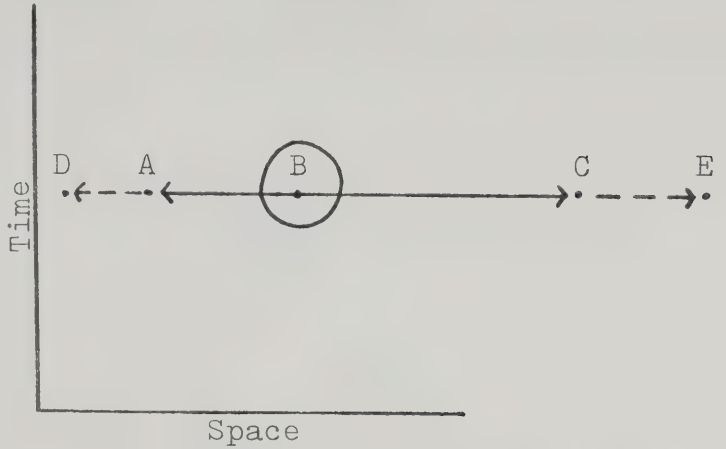
The suggested capacity of ideal types to function synthetically at the highest levels of abstraction constitutes the major criterion that differentiates them from other type concepts. In this respect, polar and classificatory types may be retained as systems components of ideal typical formulations but they lack the potential for synthetic formal specification. It is evident that only the ideal type functions at the highest level of analysis.

Generally, this thesis has considered the question of ideal type form and function as a normative problem, defining as the term suggests, patterns of systems theoretical investigation which should be pursued. The essential nature of the combined systems perspective, by definition, may provide the much needed integration of theory and practice in sociology, clarifying the critical issue of theoretical abstraction in the case of the ideal type and, consequently, linking synthetic and actual information in different fields.

F I G U R E S

Figure 1. The Ideal Polarity of Absolute Certainty and Absolute Uncertainty

Figure 2. Space - Time Location and Vector Forces of Increasing Certainty and Uncertainty



WHERE:

⊙ = An individual located in time and space with respect to a variable of attention or intention.

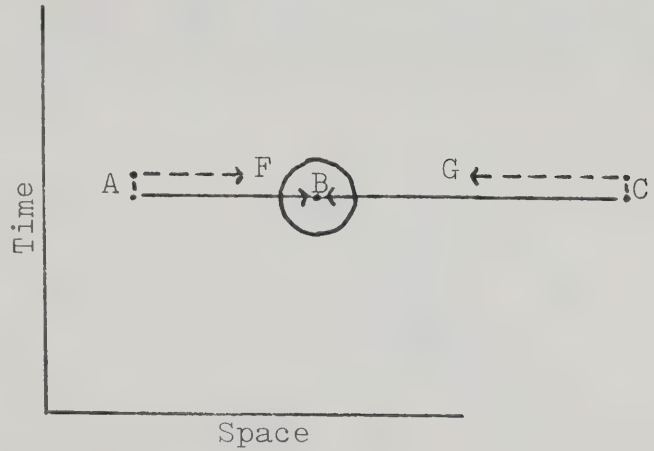
$\overrightarrow{BA}$ = A vector force of increasing uncertainty.

$\overrightarrow{BC}$ = A vector force of increasing certainty.

$\overrightarrow{AD}$ = A vector force of increasing uncertainty from previous $\overrightarrow{BA}$ owing to a discrepancy between subject and or object of attention or intention.

$\overrightarrow{CE}$ = Increasing certainty from $\overrightarrow{BC}$ owing to close correspondence between subject and or object of attention or intention.

Figure 3. Space - Time Location and Vector Forces of Decreasing Certainty and Uncertainty



WHERE:

$\odot$ = An individual located in time and space with respect to a variable of attention or intention.

$\overrightarrow{AB}$ = A vector force of decreasing uncertainty.

$\overrightarrow{CB}$ = A vector force of decreasing certainty.

$\overrightarrow{AF}$ = Decreasing uncertainty from previous $\overrightarrow{AB}$ owing to a discrepancy between subject and or object of attention or intention.

$\overrightarrow{CG}$ = Decreasing certainty from previous $\overrightarrow{CB}$ owing to a correspondence between subject and or object of attention or intention.

Figure 4. Vector Summation and Certainty/Uncertainty Moment Derivation

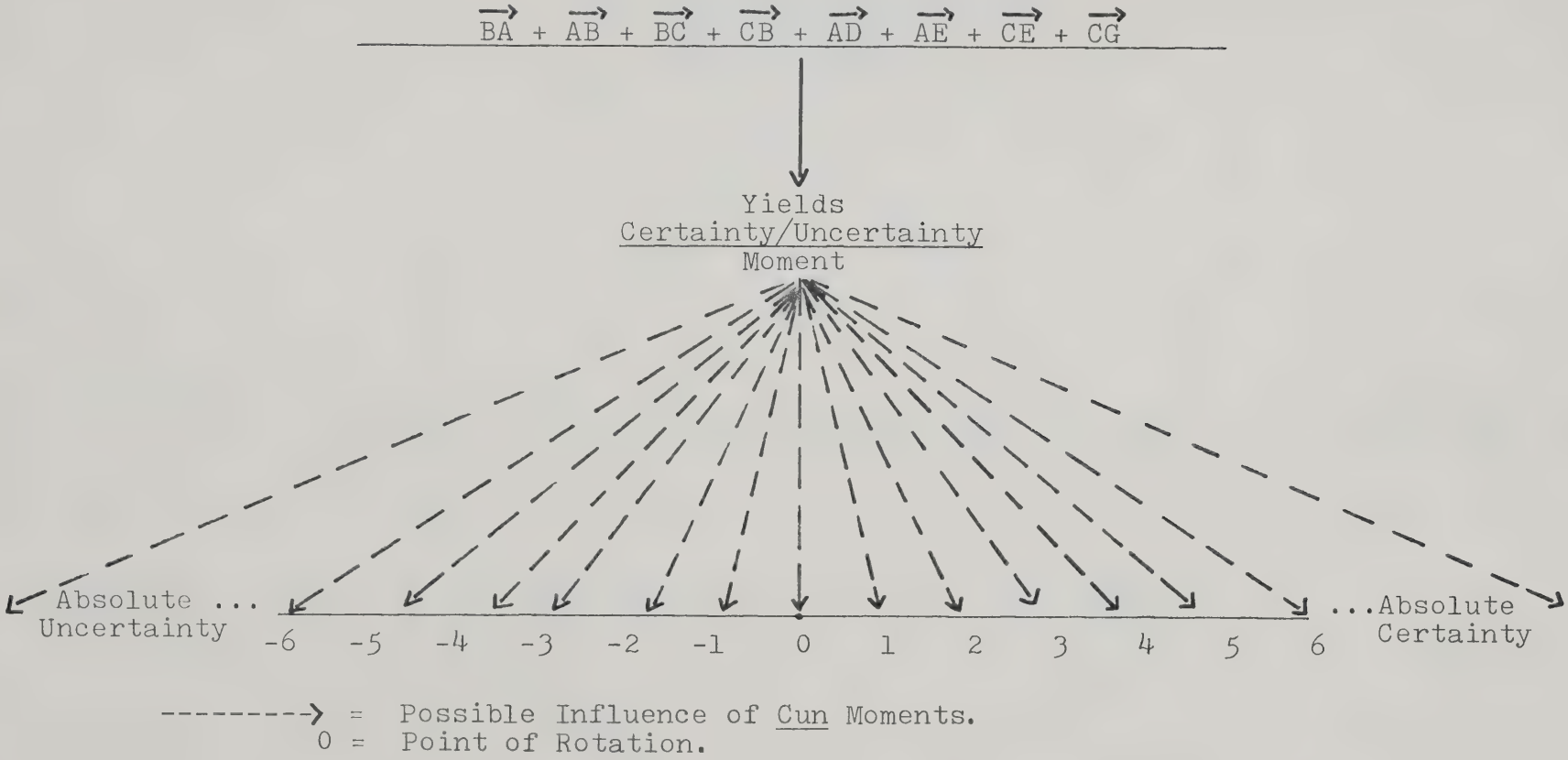


Figure 5. Cun Moment Line Motion Alternatives

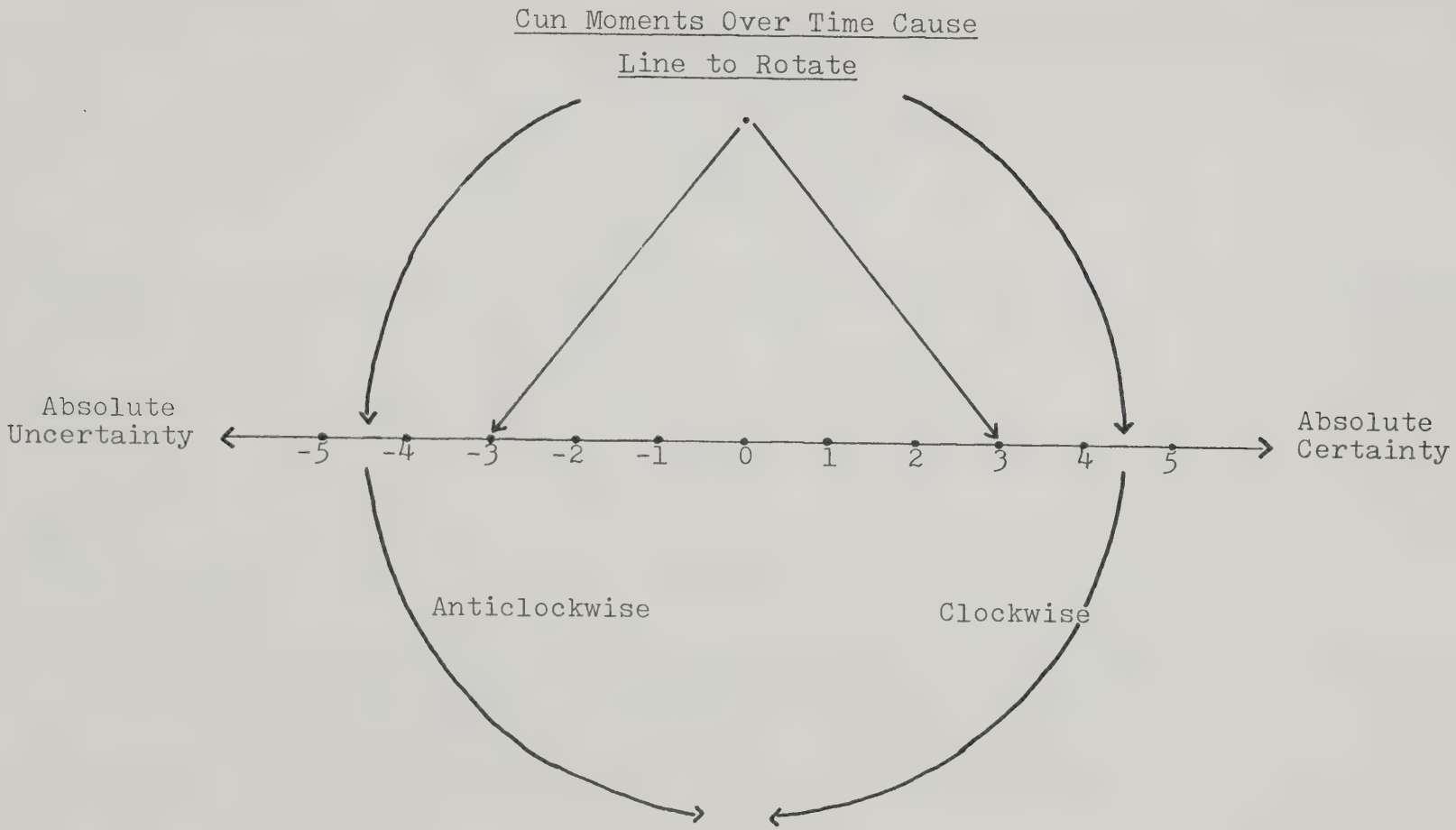
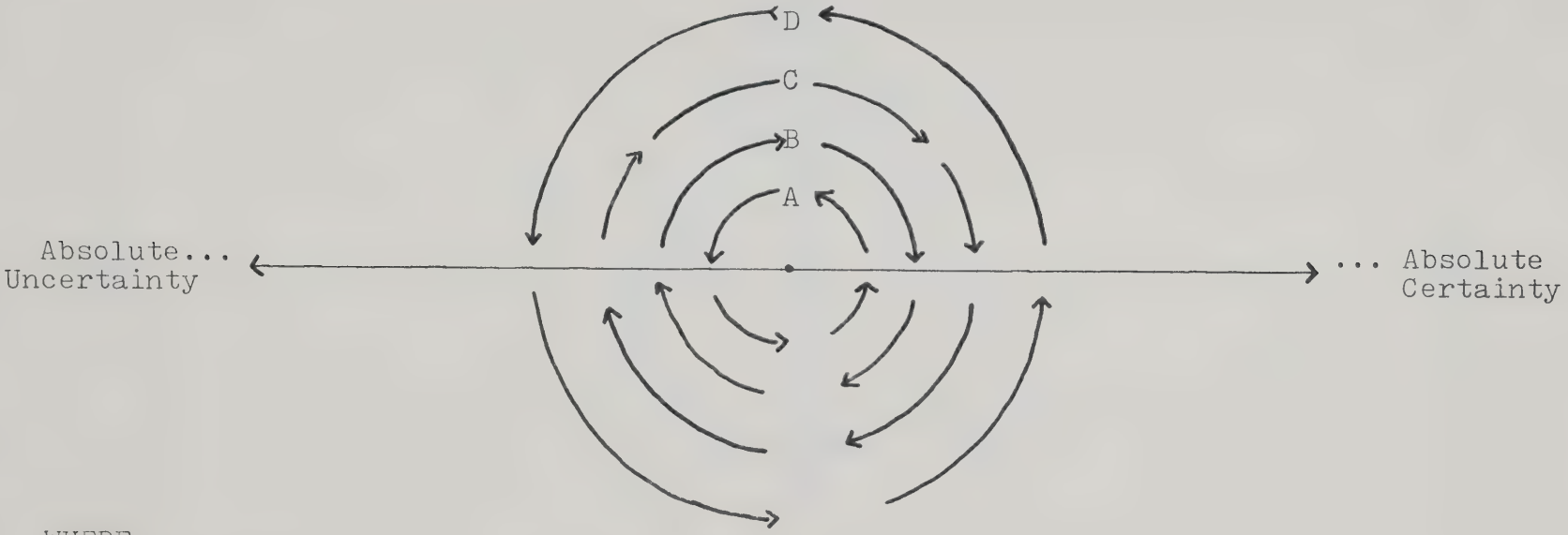


Figure 6. Characteristic Cun Line Motion
Given Changes in Certainty/Uncertainty Moments



WHERE:

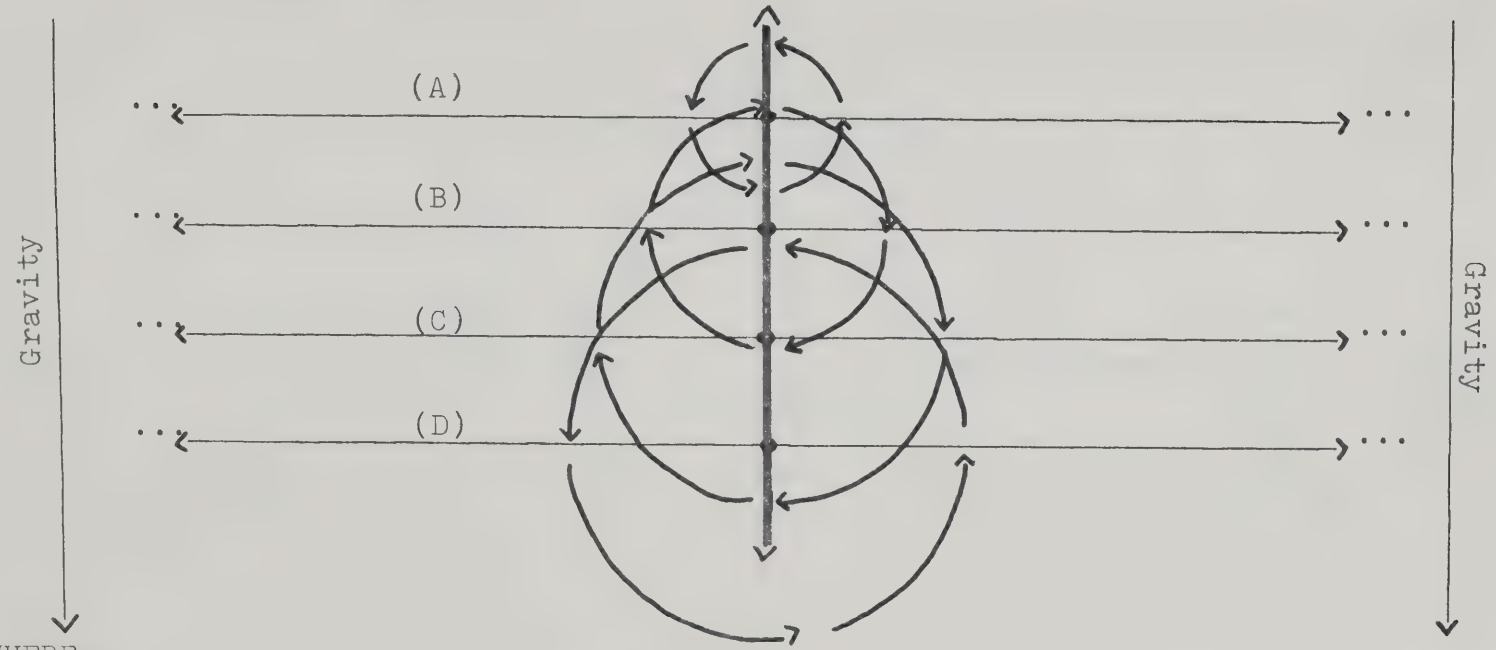
A = Uncertainty moments increase (certainty decrease or constant).

B = Uncertainty moments decrease (certainty increase or constant).

C = Certainty moments increase (uncertainty decrease or constant).

D = Certainty moments decrease (uncertainty increase or constant).

Figure 7. Resolution Maximum: The Proposed Effect of Gravitational Forces and Inertia on Cun Moments (A) Through (D)

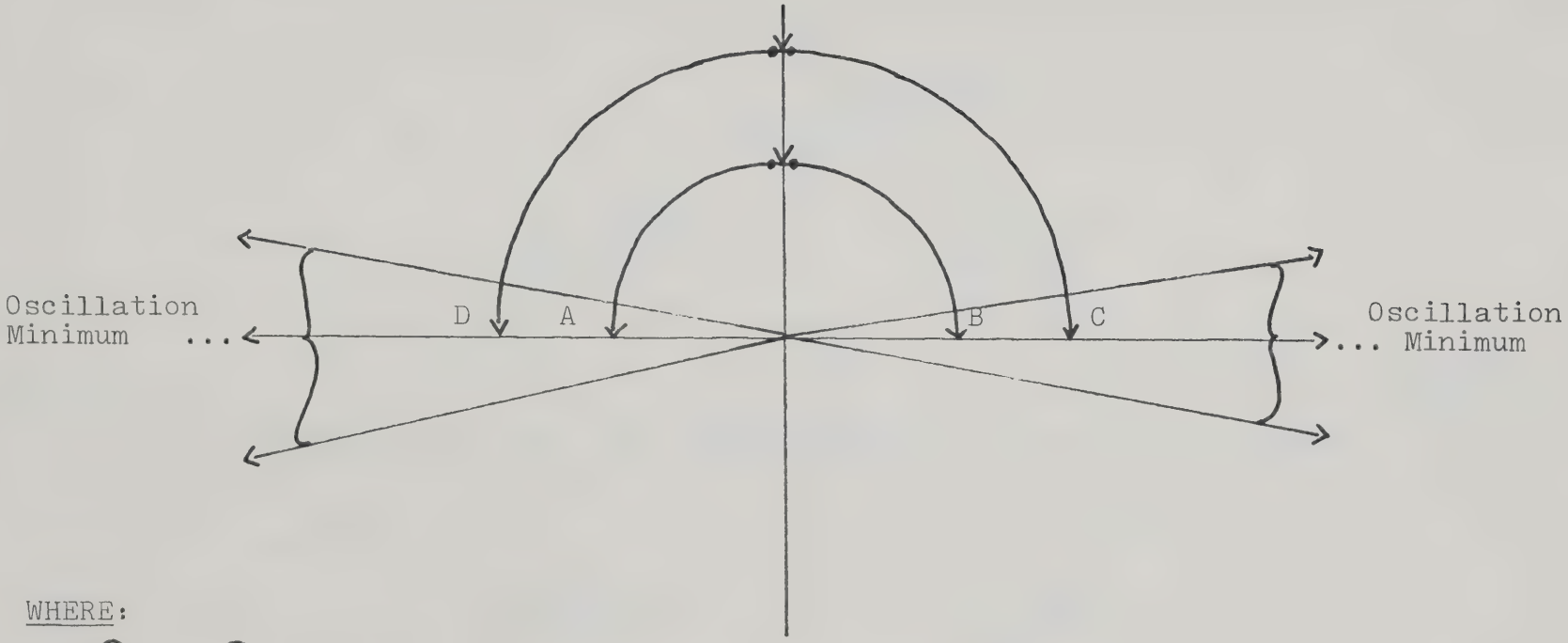


WHERE:

1. HEAVY LINE = The ideal state of resolution maximum of Cun moments (A) through (D) corresponding to statements #11 through #14. A fixed stationary and vertical line attitude.

2. Inertia is assumed overcome in each case.

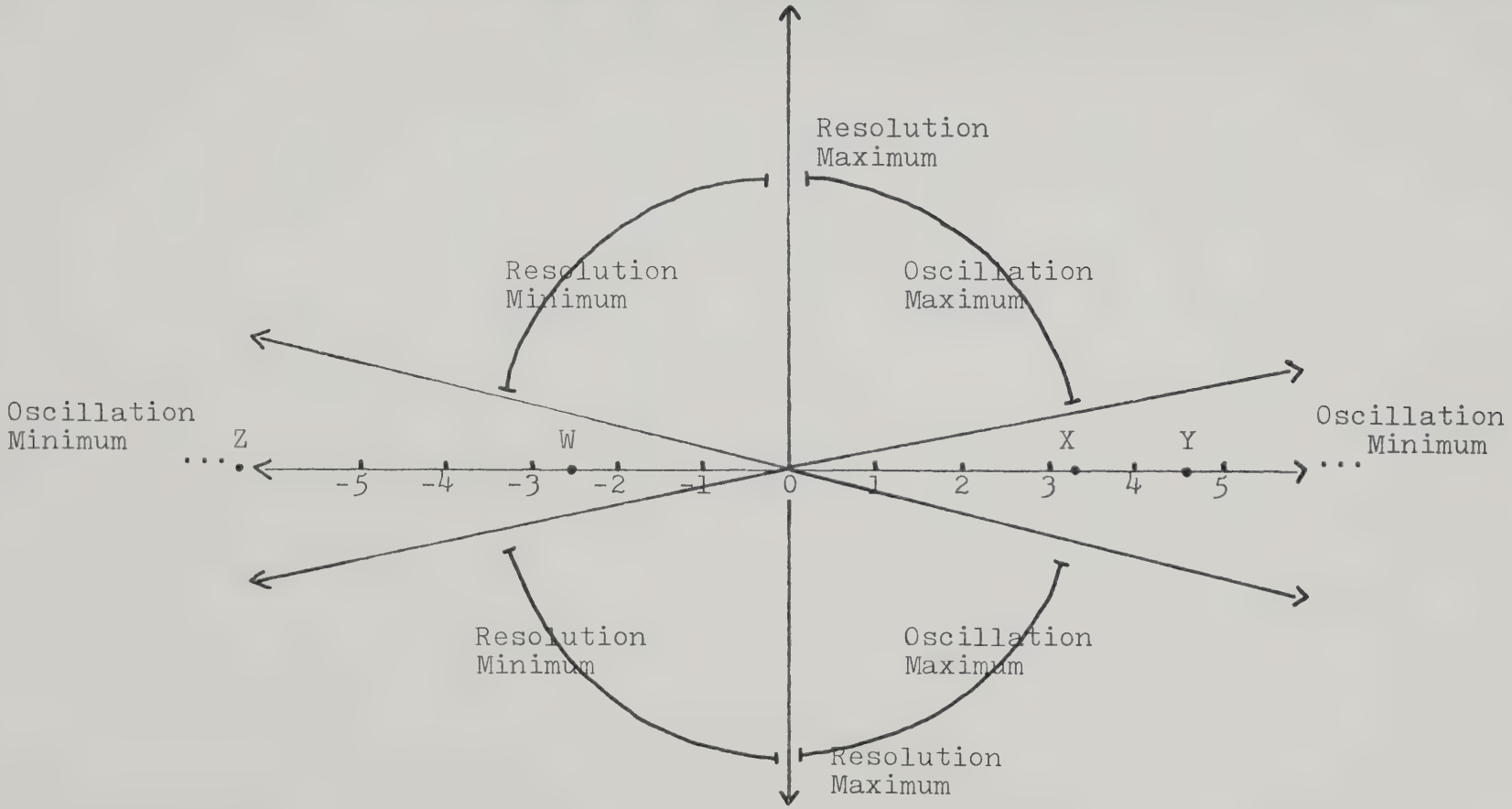
Figure 8. Oscillation Minimum: The Proposed Effect of Near Simultaneous Aggregate Moment Changes



WHERE:

1. $\overset{\curvearrowright}{VD}$ and $\overset{\curvearrowright}{VC}$ are equal and opposite aggregate moment changes.
2. $\overset{\curvearrowright}{VA}$ and $\overset{\curvearrowright}{VB}$ are equal and opposite aggregate moment changes.
3. The line attitude under these conditions will tend to seek oscillation minimum about horizontal axis.

Figure 9. Resolution Minimum, Oscillation Maximum: The Proposed Effects of Crisis States, W, X, Y, and Z



1. Crisis states W, X, Y, Z are arbitrarily placed on Cun line.

2. Since X + Y < W + Z, the model is disequilibrated from conditions of resolution maximum and oscillation minimum. The line will now exhibit the properties of resolution minimum and oscillation maximum, defined by radius of broken circle.

B I B L I O G R A P H Y

BIBLIOGRAPHY

Abel, T.,

1948 "The Operation Called Verstehen," in American Journal of Sociology, LIV:211-218.

Ashby, W. R.,

1958 An Introduction to Cybernetics, London: Chapman and Hall.

Barnes, H. E., and Becker, H.,

1940 Contemporary Social Theory, New York: Appleton-Century.

Bellah, R. N.,

1973 E. Durkheim: On Morality and Society, Chicago: University of Chicago Press.

Bertalanffy, L. V.,

1967 Robots, Men and Minds, New York: G. Braziller.

1968a General Systems Theory, New York: G. Braziller.

1968b Organismic Psychology and Systems Theory, Worcester:Clark University Press.

Boulding, K.,

1964 "General Systems as a Point of View," in M. Mesarovic (ed.), Views of General Systems Theory, New York: Wiley. 25-39.

Buckley, W.,

1967 Sociology and Modern Systems Theory, Englewood Cliffs: Prentice-Hall.

Comte, A.,

1875 The Positive Philosophy of Auguste Comte, H. Martineau (trans.) London: Trubner.

Cooley, C. H.,

1929 Social Organization, New York: Charles Scribner's Sons.

Devereux, E. C.,

1961 The Social Theories of Talcott Parsons, M. Black (ed.), Englewood Cliffs: Prentice-Hall.

Dilthey, W.,

1961 Pattern and Meaning in History, H. P. Rickman (ed.), New York: Harper and Row.

Durell, C. V.,

1927 Readable Relativity, London: G. H. Bell and Sons.

Durkheim, E.,

1964a The Division of Labor in Society, G. Simpson (trans.), New York: Free Press.

1964b The Rules of the Sociological Method, G. Catlin (ed.), New York: Free Press.

Fromm, E.,

1969 Marx's Concept of Man, New York: Frederick Ungar.

Gouldner, A. W.,

1970 The Coming Crisis in Western Sociology, New York: Basic Books.

Heelan, P. A.,

1965 Quantum Mechanics and Objectivity, The Hague: Martinus Nijhoff.

Hempel, C. G.,

1962 "The Theoretician Dilemma," in H. Feigl (ed.), Minnesota Studies in the Philosophy of Science, Minneapolis: University of Minnesota, Vol. 2, 37-99.

1965 "Typological Methods in the Natural and Social Sciences," in C. G. Hempel, Aspects of Scientific Explanation, New York: Free Press. 155-171.

1966 The Philosophy of Natural Science, Englewood Cliffs: Prentice-Hall.

1970 "Fundamentals of Concept Formation in Empirical Science," in O. Neurath (ed.), Foundations of the Unity of Science, Chicago: University of Chicago Press, Vol. 2, 651-747.

Hobbes, T.,

1958 Leviathan,
New York: Bobbs-Merrill.

Klir, J. and Vallach, M.,

1967 Cybernetic Modelling,
Princeton: Van Nostrand.

Konig, R.,

1968 "Auguste Comte," in International Encyclopedia of the Social Sciences, New York: Collier and MacMillan, Vol. 3, 201-206.

Kuhn, T. S.,

1970 The Structure of Scientific Revolutions,
Chicago: University of Chicago Press.

Lachenmeyer, C. H.,

1971 The Language of Sociology,
New York: Columbia.

Learner, A.,

1967 Fundamentals of Cybernetics,
London: Chapman and Hall.

Locke, J.,

1924 Of Civil Government: Two Treatises,
London: Dent.

Loomis, C. P., and Loomis, Z. K.,

1965 Modern Social Theories,
Princeton: Van Nostrand.

MacIver, R. M.,

1917 Community: A Sociological Study,
London: MacMillan.

Martindale, D.,

1959 "Sociological Theory and the Ideal Type," in L. Gross (ed.), Symposium on Sociological Theory, Evanston: Row Peterson, 57-91.

Marx, K., and Engels, F.,

1938 The German Ideology, London: Lawrence and Wishart.

1959 Basic Writings on Politics and Philosophy, L. S. Feuer (ed.), New York: Doubleday.

McKinney, J. C.,

1966 Constructive Typology and Social Theory, New York: Appleton-Century-Crofts.

McKinney, J. C., and Tiriakyan, E., (eds.)

1970 Theoretical Sociology: Perspectives and Developments, New York: Appleton-Century-Crofts.

Mendelssohn, K.,

1959 "Probability Enters Physics," in C. A. Crombie (ed.), Turning Points in Physics, Amsterdam: North Holland, 48-65.

Merton, R. K.,

1961 Social Theory and Social Structure, Glencoe: Free Press.

Mills, J. S.,

1950 Philosophy of Scientific Method, New York: Hafner.

Nisbet, R. A.,

1973 The Sociological Tradition, New York: Oxford University Press.

Ollman, B.,

1971 Alienation, Marx's Conception of Man in Capitalist Society, Cambridge: Cambridge University Press.

Parsons, T.,

1937 The Structure of Social Action,
New York: McGraw-Hill.

1951 The Social System,
Glencoe: Free Press.

1953 Working Papers in the Theory of Action,
Glencoe: Free Press.

Plato,

1935 Theaetus,
F. M. Cornford (trans.), London: Kegan Paul.

1969 The Republic,
London: Aldine.

Popper, K.,

1968 The Logic of Scientific Discovery,
New York: Harper and Row.

Redfield, R.,

1947 "The Folk Society," in American Journal of Sociology, LII:293-308.

Rex, J.,

1974 Sociology and the Demystification of the Modern World,
London: Routledge.

Rogers, R. E.,

1969 Max Weber's Ideal Type Theory,
New York: Philosophical Library.

Rousseau, J.,

1970 The Social Contract,
G. Hopkins (trans.), New York: Oxford University Press.

Rudner, R. S.,

1966 Philosophy of Social Science,
Englewood Cliffs: Prentice-Hall.

Schaff, A.,

1970 Marxism and the Human Individual, New York: McGraw-Hill.

Schutz, A.,

1973 "Problems of Interpretive Sociology," in A. Ryan (ed.), The Philosophy of Social Explanation, London: Oxford University Press, 203-221.

Sorokin, P.,

1929 Contemporary Sociological Theories, New York: Harper and Brothers.

Spencer, H.,

1912 First Principles, New York: Appleton.

Suppes, P.,

1972 Axiomatic Set Theory, New York: Dover.

Tiriakyan, E. A.,

1968 "Typologies," in International Encyclopedia of the Social Sciences, New York: Collier and MacMillan, Vol. 16, 177-186.

Tönnies, F.,

1957 Community and Society, New York: Harper and Row.

Toulmin, S.,

1967 The Philosophy of Science, London: Hutchinson.

1972 Human Understanding, Princeton: Princeton University Press.

Walsh, G.,

1966 Metaphysics, London: Hutchinson.

Weber, M.,

1949 The Methodology of the Social Sciences, New York: Free Press.

1958 The Protestant Ethic and The Spirit of Capitalism,
T. Parsons (trans.), New York: Charles Scribner's Sons.

1968 The Theory of Social and Economic Organization,
New York: Free Press.

Weinberg, G. M.,

1975 An Introduction to General Systems Thinking,
New York: John Wiley and Sons.

Wittgenstein, L.,

1974 On Certainty,
Oxford: Basil Blackwell.

B30219